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## Proceedings

Edited by

Danny Wong, K C Li and K S Yuen

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The Open University of Hong Kong, Hong Kong

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## Preface

We are pleased to publish the *Proceedings of the 28th Annual Conference of the Asian Association of Open Universities* (AAOU 2014).

The theme of the Conference, *Advancing Open and Distance Learning: Research and Practices*, highlights the common goal of the Asian Association of Open Universities (AAOU) and its member institutions, which is to facilitate and achieve advancements in open and distance education (ODE) on the solid basis of research findings and through sharing best practices. You will find that the papers of these proceedings serve this goal very well. They report research and share practices under at least one of the following sub-themes:

- Multi-mode education
- Student learning support
- Development of instructional materials
- Staff development
- Studies on OCW and MOOCs
- Institutional advancement and innovations
- Development and adoption of OER
- Blended learning
- Planning and management
- Collaboration between institutions
- Use of ICT in course delivery
- Quality assurance
- Assessment and evaluation
- Funding and infrastructure for research and development
- Nurturing an institutional research culture

From more than 300 submissions, the Conference accepted only 107 full papers through a stringent review process by the International Programme Committee. The papers are representative of the latest studies by administrators, academics and researchers in the field and provide a good overview of the most recent developments in ODE.

We would like to thank all authors for their contributions. We are also grateful to members of the AAOU 2014 Academic Programme Sub-committee and the Secretariat for their diligence in securing a

large number of paper submissions from a broad range of countries and completing the review of these many submissions within a tight schedule. We extend our thanks to staff of the Educational Technology and Publishing Unit of the Open University of Hong Kong (OUHK) for their design, administration and production support for these proceedings. We are also obliged to the dedicated staff of the OUHK University Research Centre for their untiring and efficient logistical support in handling the papers. Finally, we would like to express our sincere gratitude to the Commonwealth of Learning (COL) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) for their sponsorship support to many delegates to attend the Conference.

Editors

Danny Wong, K C Li and K S Yuen

October 2014

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# Psychological health education based on mobile learning

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## *Abstract*

*Psychological Health Education aims to nurture the learner mental health quality. As an important part of Psychological Health Education research, Psychological Health Education based on Mobile Learning is essential. This paper analyzes the six major advantages of Psychological Health Education based on Mobile Learning. Firstly, Plenty of resources for Psychological Health Education and information sharing, which is conducive to the extensive collection, rapid spread and timely extract of information. Secondly, as a new form of information dissemination, the Mobile Internet Technology (MIT) achieved the integrated transmission of data, text, sound and image in a single digital environment, makes people better access to information and more enjoyment of fun. Thirdly, with the continuous development and progress of Information Technology and Manufacturing Technology, the portability of mobile learning device will become increasingly prominent. Fourthly, the educated principal roles for Psychological Health based on Mobile Learning are equal. Fifthly, Great autonomy of self-learning will be provided for the learner by Psychological Health Education Based on Mobile Learning. Sixthly, Psychological Health Education Based on Mobile Learning has a strong interaction by breaking the pattern of the one-way transmission of information by the disseminators of information in the past. In addition, this paper further proposes modes of Psychological Health Education Based on Mobile Learning, respectively elaborating individual-centered self-learning mode and team-centric collective learning mode in detail.*

Keywords: Mobile Learning; Psychological Health Education; Modern Educational Technology

## **Introduction**

Psychological Health Education, an important symbol of modern school education, is both a discipline, but also a service work. Psychological Health Education, an educational work for cultivating students good psychological, is the combination of Modern Psychology, Education, Psychiatry, Sociology and other disciplines theory and educational practice. In Some foreign countries, study on Psychological Health Education has already been much more mature, while the study has just started from the 1980s in our country. Compared with other countries in Europe and America who advanced in this field a century, our country is still in its infancy because of late start. Thus, there are a small number of research results; especially it is necessary to be improved in quality. Furthermore, research on Psychological Health Education in the mode of Mobile Learning is almost blank. Therefore, How to do research on Psychological Health Education in the mode of Mobile Learning by means of computer

technology, multimedia technology, communication technology, network technology and other high-tech is very urgent and targeted in the context of lifelong education.

## **Mobile Learning & Psychological Health Education**

Dr. Desmond Keegan introduced the concept of mobile learning to China for the first time in the article named *From Distance Learning to E-learning to Mobile learning* in 2000. As wireless mobile technology, WAP, "Bluetooth " technology is getting mature day by day matures, mobile communications technology and computer technology integrate, Mobile Learning gained recognition and rapid development in the field of education gradually.

Mobile learning is an interactive teaching and learning activities by using mobile devices between students and teachers based on mobile communication technology, computer technology, network technology and multimedia technology. With the help of a mobile device, it can occur at anytime and anywhere. Mobile devices must be able to implement learning content effectively, and provide two-way communication between teachers and students.

Mobile Learning has achieved the maximum scale of education at the lowest cost with the application of a variety of high-tech in learning. Moreover, it has been extended to various fields of learning.

Study on college students' has already made some research results. However, research on Psychological Health Education in the mode of Mobile Learning is very rare. As we know, students, especially students who have some psychological problems, whose psychological problems are generally unwilling to be known, even in the face psychological health education teachers, psychologists or counselors. So it is difficult to achieve the desired effect in traditional mental health education model. In the Mobile Learning mode, students can arbitrarily vent their emotions in the virtual world and enjoy the talk and vent to obtain release and psychological balance. Mobile Learning has provided a guarantee for the smooth conduct of Psychological Health Education. Therefore, it is of practical significance to do research on Psychological Health Education in the mode of Mobile Learning.

## **Advantages of Mobile Psychological Health Education**

We live in a world in which technological innovation is occurring at break-neck speed and digital technologies are increasingly becoming an integral part of our day-to-day lives. Technological innovation is also expanding the range of possible solutions that can be brought to bear on Psychological Health Education. As new forms of school mental health education for the development of mobile mental health education has become a mental health education is an important direction of research. Therefore, the Mobile Psychological Health Education, a brand new form of Psychological Health Education, has taken its birth. Compared with the traditional Psychological Health Education, it has unique advantages.

**First, Mobile Psychological Health Education makes the mass of educational resources for the collection, dissemination and retrieval possible.** Rich educational resources are the basis of effective implementation of Mobile Psychological Health Education. The Educated get a lot latest educational resources through a variety of mental health mobile learning devices. Therefore, compared with the traditional Psychological Health Education, Mobile Psychological Health Education is more efficient.

**Second, Mobile Psychological Health Education brings more fun based on multimedia.** Multimedia has achieved three-dimensional propagation with the data, text, sound and images in the digital environment. Rich and interesting educational resources provide the emotional foundation for Mobile Psychological Health Education.

**Third, Mobile Psychological Health Education makes it more flexible by breaking time and space constraints.** Mobile Psychological Health Education almost can occur at anytime and anywhere, which will enhance the immediacy and initiation of education. The educated are able to deal with their psychological problems need to be addressed and accept what they need.

**Fourth, Mobile Psychological Health Education has achieved the equality of educational roles in the true sense.** Equal rights meet the modern advocates of democracy, freedom and equality psychological characteristics, which promote the educated self-respecting and self-releasing. It will help to stimulate the educated more enthusiasm and motivation to participate in Mobile Psychological Health Education.

**Fifth, shows greater respect for the educated.** As mentioned above, Mobile Psychological Health Education can occur at anytime and anywhere, which fully embodies the autonomy of learner-centered learning advantage. The educated can ask psychological help when he need, which improves the efficiency of psychotherapy.

**Sixth, Mobile Psychological Health Education provides stronger interaction.** Mobile Psychological Health Education can achieve two-way communication between teachers and students, students and students. On the one hand, students can receive targeted guidance through the interaction with teachers; On the other hand, the effectiveness of learning can be further enhanced through the interaction between students.

## **Models of Mobile Psychological Health Education**

### **1 Autonomous Learner Model (ALM)**

Autonomous Learner Model (ALM) is not a new term. The ALM was developed in 1981 at Arvada West High School in Arvada Colorado. The goal is to give students the opportunity to become independent, self-directed learners. The teachers are there not to direct them but to assist students in the process of becoming life-long learners. Learners accept responsibility for their own learning and develop the skills, concepts and attitudes necessary for independent investigations. Instead of seeing students as students, we began to see them as learners and they began to see that we were not dispensers of knowledge but facilitators of the learning process. Emphasis is placed on meeting the individualized needs of learners through the use of activities in the five major

Dimensions (Orientation, Individual Development, Enrichment, Seminars, In- depth Studies) of the Model.

Autonomous Learner Model (ALM) can provide a self-help model for Mobile Psychological Health Education. First, it can provide an opportunity to develop students' self-evaluation, self-education and self-development capability. Meanwhile, it can provide students with personalized colorful psychological health education resources based on the mobile learning platform. For example, Cultivation for good Quality, Improvement of Observation& Memorization, Handling of Relationships, Love &Marriage, Relief of Academic Pressure & Test Anxiety, Withdrawal of Low Self-esteem , Jealousy , Depression , Excessive Anxiety etc. In addition, it can guide students to participate actively to enhance psychological adjustment, establish the correct psychological health awareness and prevent psychological problems

## **2 Interactive Group Learning Model**

Interactive Group Learning Model is considered as a good potential complement to ALM. In this model, teachers became the facilitators of learning, not dispensers of knowledge. Teachers need to mesh the concepts of critical thinking, experiential learning, reflection, and cooperative learning in such a way as to accomplish the desired educational outcomes of producing students who can think, analyze, problem solve, communicate, and evaluate their own effectiveness to assure self-improvement.

The teacher acts as a guide by creating an environment that is conducive to learning. It becomes the teacher's job to help students discover the material rather than outlining it for them. After the teacher sets up the experience, students first prepare individually out of class through teacher-constructed study guides, worksheets, and other exercises that require them to attain essential factual information, and then, in groups, become active participants in solving the problem or completing the task at hand.

Interactive Group Learning Model makes Group and Peer counseling possible for Mobile Psychological Health Education. For example, we can establish a network of mental activity and counseling groups, launching lively and interesting group learning activities such as psychological development training, psychological fun games etc. It is significant to improve participants' psychological health through group cooperative work.

In summary, Mobile Psychological Health Education is a product and application of Modern learning theory instead of proposing to be taken for granted. Mobile Psychological Health Education, a new education model for Psychological Health Education, has its practical significance and relevance.

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# Web-based cooperative learning in distance education

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## *Abstract*

*With the modernization of Chinese society, studies in conventional class only in school no longer meet the needs of the new era of the knowledge-based economy and of people who are seeking the expanding knowledge. The web-based cooperation learning as a new study mode provides complementarities for the conventional class study mode. This paper described the web-based cooperation learning in distance education.*

*And in this paper, we also made some ideas that how to train the students' collaborative learning capacity with Modern advanced information technology. Firstly, dividing learners into small study groups. Secondly, students should make efforts to collaborate with other classmates to organize, develop and implement learning program. In addition, students should learn to select the collaborative learning strategy and make self-assessment for themselves. Thirdly, we should try to stimulate students' own internal motivation and their initiative to study under the guidance of the theory of collaborative learning. Fourthly, in order to support students' active learning though open and distance learning, teachers are required to share their information resources generously. Fifthly, mastering the use of modern communications equipments plays a significant role in open and distance learning. So before the start of the course, it's necessary to teach students to use these equipments correctly. Finally, the feedback from both teachers and classmates must be as quick as possible.*

**Key words:** Distance education; Cooperation learning; Information technology; Study

With the rapid development of science and technology and its application in education ,the learner's learning style has been greatly changed. Meanwhile Learners cannot study behind closed doors, they ought to cooperate with others by using the modern information technology. Especially some learning content must depend on the interaction between students and teachers. Collaborative learning process is a student-centered learning process, it is both a collaborative process, but also a good way to show students' features, which also provides a convenient, diverse environment for learners in the IT support of modern distance education.

## **The collaborative learning: a brand new learning form of modern distance education**

With the development of modern technology, a brand new learning form ,modern distance education, appeared, which is an inspiring and revolution form of education by

using multimedia technology<sup>[1]</sup>. In distance education, teachers and students are separated from each other and students mainly rely on self-learning and collaborative learning to complete the construction of knowledge instead of traditional study in school. Collaborative learning is one of the main forms of distance learning.

The ideal of collaborative learning first appeared in America in the late 19th century, which is originate from constructivist theory, which has been studied profoundly and widely in the past 3 decades. According to China's experts, the definition of collaborative learning is that, students participate and cooperate with their teammates in groups in order to maximize their learning effects under certain external motivations<sup>[2]</sup>.

Collaborative learning is completely different from traditional group learning. The latter one is to divide students into groups according to their ability or sores, which is not practical in the case of distance education.

Collaborative learning is much more flexible that students can voluntarily make their own study groups based on their cultural background, geographic advantage or whatever they think is helpful and convenient for them to overcome difficulties in the case of distance education, such as: outdated equipment, lack of teaching resources etc.

Collaborative learning is mainly used in distance education that teachers and students can't meet everyday. Practice proves that it can arouse students' initiative and stimulate their potential to enhance the effectiveness of learning through teamwork. But Collaborative learning has its unique features in modern distance education. Firstly, team members must have the same learning goal, share their in formations and materials selflessly and cooperate with each other. Secondly, each member should Join in team work and group activities actively, as well as clarify the obligations and perfect the charters of the organizations. In practice it has proved that the more activity students participated ,the learning effect is better. Thirdly, teachers are required to cooperate and instruct students in the whole process. Finally, campus must be equipped with computer, multimedia classrooms, internet connections etc. Good equipment support is essential.

Thus, we can conclude that collaborative learning is a product of modern distance education, which is based on modern information technology as part of its media. Following the development at full speed of the modern information technology, distance education has already stepped into a brand-new digitalized era. Collaborative learning is an effective pattern of organizing teaching in such new learning environment.

## **The theoretical basis for distance collaborative learning**

One of the important theoretical basis of collaborative learning is Humanism learning theory. C.Rogers believed that learning mode should be focused on the full development of personal potential, personality and character[3],which has greatly challenged the traditional teacher-centered teaching mode. Humanism learning theory emphasizes human for the most, advocate the prominent student's subject status, respect students' personalized needs , learner-centered. The supporters of Humanism also consider that learning efficiency comes only when students' subjective initiative is stimulated. That's the reason why meaningful learning and group learning is so significant in the learning process [5].

Another important theoretical basis of collaborative learning is Constructivism learning theory. Constructivism learning theory argues that knowledge is not passively acquired from teachers but is constructed actively by individuals. Constructivism emphasizes student's subject status, learning initiative, sociality and situation. Constructivists consider Truth is in the eyes of the beholder. Different people might

have different views about the same thing. That's why learners should construct knowledge structure in their own way[6] . Therefore, collaborative learning is widely accepted by constructivists.

Habermas's theory of communication is also an important theoretical basis of collaborative learning that provides a new idea for open and distance learning. The theory of communication consider when a task is too complex, cooperating with others is an effective way to overcome difficulties and hardships. That shows collaborative learning does not emerge randomly but follow the specific practice in modern distance education.

## **Information technology is the effective guarantee of collaborative learning**

The development of human society is driven by science and technology. For ages, the development of human society has closely bonded to science and technology. Every time the leap of science and technology will cause great changes in education. The process of education, broadly speaking, is a kind of information transmission. Though history, the development of education and the evolution of information technology is synchronous. Once human society has a change of information technology, education also will have the corresponding changes sooner or later. So does modern distance education. From correspondence education to modern distance education, every reform is caused by advances in information and technology. In current information times, Modern distance education is based on high integration of computer technology, network technology and the satellite transmission system.. Modern distance education will not exist without these technologies. In the case of distance learning, teaching behavior must depend on communication technology to carry out .

To achieve the effective learning, we must strengthen interaction between teaching and learning. During transmitting process, the communication between teachers and students has to be tightly linked though the mutual feedback in order to achieve the best teaching results. Especially under long distance education circumstance, it is strikingly different from the traditional way of learning, therefore teachers and students need to strengthen interaction through multimedia technology more, which happened to coincide with Constructivism learning theory that the construction of knowledge is not passively acquired but through interaction between subject and environment .Therefore the key point which decide learning effect is neither external factors nor internal factors but the interaction of the individual and the environment. That's the critical factor.

According to the different interaction object, there are three main forms of interaction. First, interaction between learners and learning content. Second, interaction between learners and teachers. Third, interaction between learners and learners. In the long-distance teaching, the teachers and students are separated from each other, learners must study through multimedia. Therefore human-computer interaction, human-computer-human interaction and human-human interaction these 3 modes have formed. Human-computer interaction is the evolution of interaction between learners and content. Learners can use this mode by using multimedia teaching software though multimedia computer or interactive TV to study learning resources and construct knowledge system. This mode not only can effectively stimulate students interest and learning motivation, but also helpful to display students' subjective initiative. The second

mode, human-computer-human, shortened the distance between people. Students can contact with their teachers whenever they have questions. The third mode, human-human interaction is still indispensable, this mode is essential to expanding understanding and trust between teachers and students, which is more conducive to efficient learning.

The famous Irish scholar Keegan said, Distance learners' learning locations are theorists long-term research issues, and now have some answers, that is, gathering students through modern technology [7]. In modern open distance education, teachers should master the application of modern computer technology, multimedia technology and communication technology. Only in this way can we succeed in modern open distance education.

## **The establishment of an effective collaborative learning network**

Modern distant open education is mainly based on individualized learning and collaborative learning in order to ensure the quality of learning, how to train the students' cooperative learning ability is a very important question. Interaction is the key point of collaborative learning, therefore how to build the efficient interaction network is central to learning on the social web. I think we can consider from the following aspects to implement collaborative learning effectively:

Firstly, analyzing students from the aspects of background, cognitive ability and learning objectives and then dividing them into small group. The group should have a name, a clear obligation, a specific learning objectives and a viable work plan. And the composition of the group is given priority to students' voluntary choice while teachers should give necessary face to award coach and teach supportive service to learners.

Secondly, students should fully cooperate with other group members to work out a study plan, choose the collaborative learning strategy, and control the whole process of learning. The teacher is just learning guidance, advice, and not the master of the learning process. Students are responsible for their own study.

Thirdly, teachers need to adjust their concepts and guiding ideology of learning, stimulating the learner's internal learning motivation, make students enjoy their learning. More importantly, teachers and students should summarize experience constantly to find out the best model of collaborative learning. Of course, this pattern is not immutable and frozen, but should be adjusted according to the actual situation and the learning process.

Fourthly, distance Learning center is supposed to provide abundant information resources for learners. These information is essential for students to construct their framework of knowledge, mode of thinking and sense generating, which develop learners' self-study ability and innovative ability, as well as strengthen the internal cohesion of the group.

Fifthly, communication tools are the decisive factor because of the separation condition between teachers and students. There are two kinds of communication tools in distance education. One called asynchronous tools including forums, emails and messages etc. The other one is synchronization tool including online discussing and instant messaging software. Before the start of the course, teachers are responsible to tell students what communication tools are and how to use them correctly.

## **Conclusion**

Modern distance education provides technical support for the implementation of collaborative learning. Especially the platform of online discussion offer learners a convenient and flexible place for interaction, which enhances students' learning initiative, independence and personality, and has a great significance for the cultivating personnel with the innovative spirit and practical ability.

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# Open distance learning and knowledge management

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**Abstract:** Knowledge Management (KM) was the buzzwords of the industry in the late 20th century. With the rapid development of world-wide-web and the internet technology, the industry placed high hope on KM to help us transform productivity and the way we learn. Unfortunately, KM seemed to fall short of the expectations. Businesses have gradually leaving KM and look for other solutions. Instead of dismissing the contributions and efforts of KM practitioners, KM has actually evolved into many different modes and infiltrated into our economy and education processes. One of the examples can be seen in education, in the form of Open Distance Learning (ODL). While ODL in education was developed separately from the KM in the industry, they are very similar in nature. Knowledge framework naturally existed in any of the learning and sharing processes. This paper intends to discuss the inter-relationship between ODL and KM, how processes in KM implementation are actually being applied in ODL.

The first part of the paper discusses the nature and perceptions of knowledge. Then it provides the comparison between the ODL process and KM framework. Knowledge Spiral suggested by Nonaka and Takeuchi (1995) is used as the general accepted KM framework in this comparison. Through the comparison, the paper further suggests how technology changes have lead to the enhancement of KM processes and how ODL can be operated. In addition, the paper suggests that emerging technologies, such as mobile applications, sensory technology and wearable devices will further increase the effectiveness of KM and ODL. Through innovation in technology and processes, the ability to identify and use the most appropriate knowledge at the right place and time becomes the key for mutual success.

**Keywords:** Knowledge Management, Open Distance Learning, Knowledge Spiral, Learning Technology.

## 1.0 Introduction

Globalisation was forced onto business organisations and created tremendous challenges and competitions. The so call “knowledge age” which emerges after the “industrial revolution” has been widely discussed and speculated. In the late 20<sup>th</sup> century, Knowledge Management (KM) has become the buzzword in business world. According to Drucker (1993), knowledge is the only meaningful resource today, as compared to traditional resources such as labour, capital and land. Nanoka (2000) argued that the success of the Japanese companies is due to the fact that these companies constantly seeking new knowledge to bring about continuous innovation.

Nevertheless, in the 21<sup>st</sup> century, knowledge management was thought to have fallen in its popularity. It was perceived to have failed to fulfill the high expectation of the business communities (Malhotra, 2002). Figure 1 shows the number of searches for the term “Knowledge Management” has been gradually reduced in the last ten years.

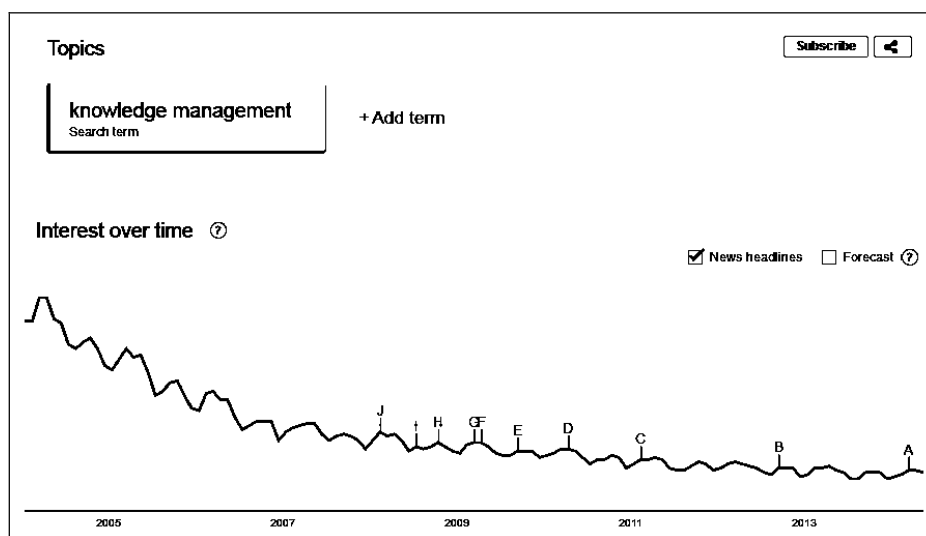


Figure 1 Google Trends for “Knowledge Management” (Google, 2014)

However, if we observe what the trend of Internet usage, the explosion of social media, and adoption of mobile applications, knowledge sharing has intensified instead of reduced. Hence, KM is very much alive even though people has decided to use many others terms to describe KM activities.

Today, KM existed in many forms. Social media, mobile applications, clouds and mobile devices all play significant roles in the KM activities. KM is also formalised into

systematic learning processes in education. One of them is the Open Distance Learning (ODL). ODL existed before the term KM was coined. The original form of ODL was carried out using mail correspondence. It has evolved into the modern form of ODL due to the emergence of the Internet and the information technologies.

## 1.2 Motivation

This paper was created out of the interest to reveal that KM process is alive and applied in ODL. Based on this fact, ODL processes are mapped in accordance to a well-known KM approach.

## 2.0 Aim and Objectives

The aim of this paper is to study how KM practices are implemented through ODL, specifically in course development and delivery processes in Wawasan Open University (WOU). The KM practices in this context are referred to a model introduced by Nanoka and Takeuchi (1995). The objectives include:

- To relate KM practices to course development and course presentation processes
- To introduce the concept of “value” to the ODL process
- To suggest technology intervention to the current KM and ODL processes

## 3.0 Literature Review

Knowledge is not a tangible object that one can grasp easily. The fluidity nature of knowledge makes it very illusive, and certain form of visualisation is needed to describe how knowledge processes have taken place. This section presented some of the common perspectives in the study of KM.

### 3.1 Hierarchy of Knowledge

According to Wallace (2007), there is a hierarchy that represents the relationships among data, information, knowledge, and wisdom in information science (Figure 2).

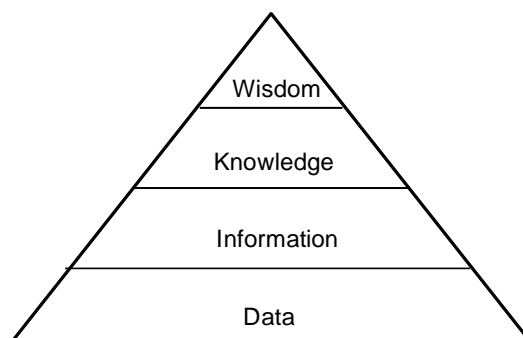


Figure 2 Hierarchy of Knowledge



“Data” is considered as the lowest form in the hierarchy. It consists of symbols, signs, numbers, characters and figures. Data does not provide the meaning. It needs to be combined to form meaningful “information”. Information is constructed from data with purpose, and forms the basis for “knowledge”. Knowledge is information, which is given the contexts to relate to the real world. Hence, the knowledge constitutes the most useful part of the hierarchy, i.e. the “know how” that enables users to act. On top of knowledge, there is another level known as “wisdom”. Wisdom represents even higher level of intelligence, which is abstract in nature. Zeleny (2005) described it as “know why”. The focus of this paper is on the first three levels, i.e. to observe how data and information can be transformed into useable knowledge.

### **3.2 Types of Knowledge**

“Tacit knowledge” and “explicit knowledge” were concepts introduced by Polanyi (1966). Explicit knowledge is a type of knowledge that we can codify and capture on paper, files, and database that we can share with each other. On the other hand, tacit knowledge is part of knowledge that is embedded and hidden in individuals, which is hard to be articulated.

The ratio by rules of thumb for explicit knowledge to tacit knowledge is about 20:80. Explicit knowledge is more useful to users as it can be shared and reused. It is possible to convert tacit knowledge to explicit knowledge through modern information technologies. However, the tacit knowledge is so illusive that even the knowledge owners may not aware of what they know. Hence the conversion remains a big challenge.

### **3.3 SECI Model**

The KM model suggested by Nonaka and Taguchi (1995) can be represented by the continuous information flow that involves the four KM quadrants. The four quadrants are “Q1: socialization”, “Q2: externalisation”, “Q3: combination”, and “Q4: internalization”. Hence the KM model is also known as the SECI Model (Figure 3).

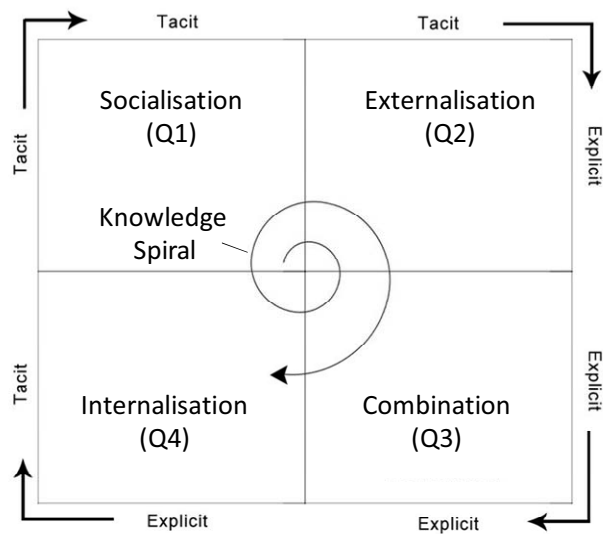


Figure 3 Nanoka and Taguchi, SECI model

The four quadrants (Q1 to Q4) can be described as follows:

**Q1: Tacit to Tacit (Socialisation)** - This quadrant represents social interactive activities by the members to exchange tacit knowledge. Tacit knowledge is shared through face-to-face conversations, for example, meetings, brainstorming, apprenticeship or informal discussions.

**Q2: Tacit to Explicit (Externalisation)** – The conversion of tacit to explicit knowledge is done through externalisation, i.e. publishing or articulating knowledge. This process enables knowledge to be captured and shared without the presence of the owners. Externalisation can be carried out in the form written documents, illustrations and physical products or other creative media.

**Q3: Explicit to Explicit (Combination)** – The creation of explicit knowledge can also be carried out by combining other available explicit knowledge. For example, a literature review combines information from different publications to support a new research. Combination of old products will enable the creation of a new prototype.

**Q4: Explicit to Tacit (Internalisation)** – When an individual or a group learns from the available explicit knowledge, and turn it into his or her own, internalisation is taking place. In other words, it is the process of applying the explicit knowledge gained. It also includes enrichment that adds more values to the original tacit knowledge. For example, a creative musician may combine his or her personal inspiration with the song he learned from the recorded music sources.

## 4.0 Discussion

This section intends to show the close resemblance between the SECI model and the ODL operating processes. In fact, ODL process is considered as a type of SECI process.

### 4.1 SECI Model in ODL

The overall course development process is as shown in Figure 4.

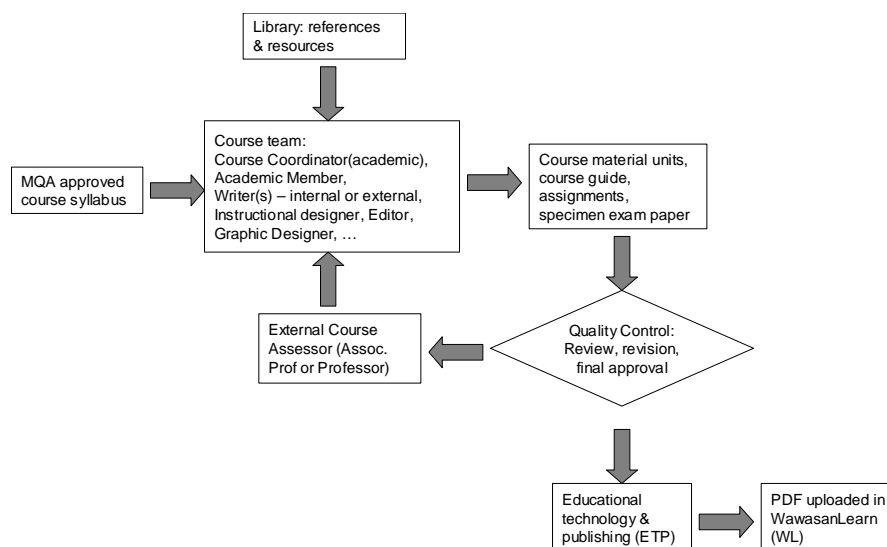


Figure 4 WOU Course Development Process

In ODL, a course is initiated from the course blue print. The course team needs to gather the opinions of from the Malaysian Qualifications Agency (MQA), stakeholders, external experts, and education specialists to create a blue print. Hence, the course will go through discussions (Socialisation, Q1), writing (Externalisation, Q2), researching and citing (Combination, Q3). In process, the coordinator and the course team will go through learning (Internalisation, Q4), and return to the discussion process with peers, academic members for improvement. This may be repeated in a few iterations.

The blue print will be assigned to a course writer. The course writer will bring along his or her knowledge and share with the coordinator (Q1). Then, the writer will go through the writing process (Q2), finding and extracting from references (Q3), learning (Q4), discussing with coordinators (Q1), and repeat the cycle.

In addition to course coordinator, we have the External Course Assessor (ECA) who will evaluate every unit that the course writer has completed. There may be discussions with the writer and coordinator (Q1). The ECA will produce reports to the writer and

coordinator (Q2). In this case, the knowledge from the ECA will be channeled to the coordinator and the writer. The writer can then continue with the writing (Q3) iteratively until the units satisfy the ECA's requirements.

Course team meetings (Q1) will also be carried out to gather the inputs from other members in the course team for continuous improvement. The same process will be repeated until the course modules are completed. At the end of this process, the course will increase in explicit knowledge content. At the same time, the coordinator, ECA and course writer will accumulate their tacit knowledge as well.

When the course is offered to the students, they can go through the course material given to them and internalised the knowledge (Q4). Through the monthly tutorials, the students will be able to discuss with the tutors and fellow students (Q1). The additional tacit knowledge will be gained through the tutorial classes. Then, the students need to work on Tutor Marked Assignment (TMA) by externalise what they have learned (Q2). They may also include their own experience into the assignments (Q2). The student may also combine additional information in books or the internet (Q3), and learn from them (Q4). This is followed by discussions with the tutors, peers, or coordinator (Q1). The process will then be repeated. The cycle will be intensified when the dateline is near, until the assignment is submitted (Q2). The most important result at the end of the process is that the students gain tacit knowledge that they can apply into the daily work, and perhaps transfer the knowledge to other new recipients.

It worth to point out that ODL method has an advantage in bringing latest, up-to-date tacit knowledge to the students as compared to the traditional learning method. This is because in ODL, external knowledge is constantly being updated through the tutors, who are mostly experts and practitioners of related fields. They are the sources of live knowledge, which otherwise, the students could only depend on the static course materials.

#### **4.2 Technologies in SECI Model**

With the advancement of technology, the SECI process has been accelerated. Internet and mobile devices enable continuous communication even when the users are on the move. This will ensure the SECI process to be executed at all time. For example in socialisation (Q1), the face-to-face interaction can be carried out even when the members of a group are not at the same place. Members with different language ability can also interact through language translation software.

In the old day, human rely on pictures and texts to convey the explicit knowledge. Today, there are many sensory technologies including camera, microphone, and application software that help users to increase their capabilities to convert tacit knowledge to explicit knowledge (Q2). For example, voice recognition software, helps to capture narrations into text. Ever improved audio and visual technology helps to ensure the important images and sounds are captured. More and more tacit knowledge in the real world can be recorded as sharable explicit knowledge.

Editing software and hardware technologies ensure that multimedia information, images, video and voice can be easily combined with text documents to form information rich repository of explicit knowledge (Q3). These technologies have become more accessible to everyone. Nowadays, even children are able to take part in the explicit knowledge combination process.

Explicit to tacit knowledge transfer process (Q4) does not rely on the books alone. With the proliferation of internet, computer and mobile devices, sharing of explicit knowledge has become a norm in the modern society. For example, users can learn on the web, mobile apps or eBooks from their computer or mobile devices. It can be done at any place at any time with adequate network coverage and memory storage.

## 5.0 Discussion

Education system today faces a lot of challenges. Many have perceived that the current education system only managed to produce students who are trained at answering examination questions, but are not equipped with real skills at work. This section touches the value creation process that the students can go through to acquire the real working skills.

### 5.1 Knowledge Spiral

In SECI model perspective, the knowledge that does not provide skill improvement stays at the two-dimensional SECI plain. There is a third axis perpendicular to the plain that shows the advancement of knowledge. Hence, Nanoka and Taguchi (1995) also suggested the knowledge spiral as shown in Figure 5.

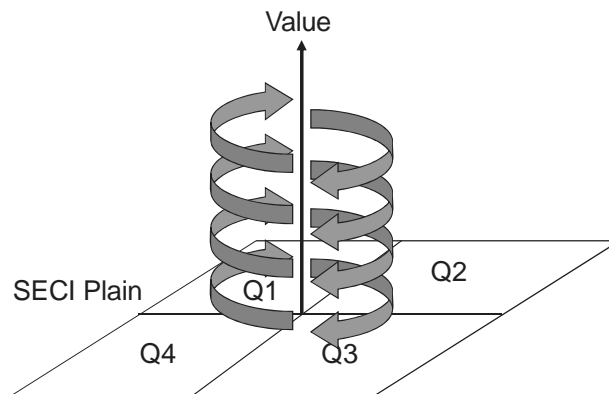


Figure 5 Knowledge Spiral

The result of the knowledge spiral represents the value created by people. It is the 3<sup>rd</sup> axis perpendicular to the plain of the four knowledge quadrants. The “arrow” shows the direction perpendicular to the knowledge plain points towards the increase in values of products and services.

The education objective is achieved through the experience that the students have gone through in planning, designing, and problem solving for value creation. Through this process, learning is no longer hypothetical. The students will gain tacit knowledge through learning experience and provide practical contributions in the projects.

### 5.2 Further Suggestion for SECI Model

The author would like to suggest an addition form of explicit knowledge, i.e. the creations as a result of the knowledge. For example, a physical product (which is designed to

perform a certain function) can be considered as a form of explicit knowledge. Knowledge can be conveyed through the usage of a product, study the design of the product, and derive inspirations from the product.

A “combination” quadrant is usually referred to the writing activities that help to put different articles together to form a new publication. However, in terms of physical objects, an assembled product can be considered as a form in Q3. The product contains the information of usage and design. Hence, as a user uses the product, tacit knowledge is derived from the product through users’ experience (Q4). In the author’s view, learning from real world products may have even greater impact than learning through documents and publications.

ODL has taken advantage of the internet to improve its reach to more students. However, the main course materials are still mostly text based. Conscious efforts to introduce appropriate technologies will help to accelerate the evolution of ODL education. For example, instead of text-based materials, the lecturer can use video, multimedia or even products as learning materials. The students could also submit assignments using the alternative forms when appropriate.

## **6.0 Conclusion**

KM has become an integrated part of the modern world. Even though the term is hardly mentioned, it has evolved into countless processes of our life. ODL is a form of KM process that was enhanced by the advancement of information and communication technology. The KM practices in ODL can be observed through the SECI model. The members practicing KM will benefit from the experience gained in the continuous knowledge cycle.

Technology advancement helps to accelerate knowledge transfer through various forms of explicit knowledge conversion. However, technology and explicit knowledge must not be the main focus of the educators. The most important objective is to accelerate the formation of tacit knowledge in each student to add greater values to the society.

ODL as a form of KM process can help to create learning cycles and translates learning into real world values. As ODL has much bigger reach to larger population than traditional education, the adoption of value creation approach in learning will bring even greater impact to the world.

## **Acknowledgement**

I would like to thank Wawasan Open University (WOU) for providing me with the opportunity to experience KM in real life through ODL processes.

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# Development and innovation in distance education approaches in rural China

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*Abstract:* Modern distance education in rural China with the Central Agricultural Broadcasting and Television School (CABTS) as the major platform has gone through 34 years of development. The instructional approaches of CABTS have also developed from the only means of radio to multiple distance education approaches including radio, television and network. Along with the ever evolving of modern educational technologies, CABTS has been making all efforts in innovation of the instructional means. At the same time of integrated use of multiple educational approaches and taking the advantages of quality educational resources, it has been exploring and applying new information technologies and modern media to develop rural distance education in China, which has contributed greatly to the economic development of agriculture and rural areas of China and provided great assistance to farmers to obtain relevant knowledge and improve skills. This paper will present the development and innovation process of distance education approaches of CABTS, from radio, slides, audio and tapes to television, video, VCD and DVD to the multiples means of today including the Internet, satellite, computer courseware, on-line learning platform as well as mobile learning and mobile classrooms with flexible modern media technologies and quality education and training resources. CABTS has built up a public service platform for distance education in rural China, opening up a new way for education and training of farmers. On the basis of comprehensive analysis of the features of various education approaches and models, this paper captures the effectiveness, experiences and inspirations of distance education in rural China. It also tables the options of instructional approaches in different instructional models. The paper is also outlook about the development trend of distance education in rural China by reviewing the development of modern education technologies in rural distance education results.

*Key words:* innovation, distance education, instructional means, development

At the beginning of the 80's of the last century, the China Central Agricultural Broadcast and Television School (CABTS) was founded, symbolizing the inception of rural distance education in China. With 34 years of reform and development, the CABTS system has evolved to a five-level schooling network with established and officially recognized four levels of schools at the central, provincial, municipal and county levels plus township and village instructional classes. The CABTS system started the history of rural distance education in China. It has been playing the roles of mainstream channel, major theater and leading taskforce in farmers' education and training and the nurturing of practical talents in rural areas.

### *1. Current Status of Rural Distance Education in China*

At present, CABTS system has 2,600 schools at various levels, including one central school, 36 provincial schools, 319 municipal schools covering 89% of the total number of municipals, 2,244 county schools covering 83% of the total number of counties. Based on CABTS schools, 2,270 farmers' science and technology training centers have been set up at various levels, including a ministerial center, 35 provincial centers covering 97% of the total number of provinces, 315 municipal centers covering 98% of the total number of municipals and 1,920 county centers covering 86% of the total number of counties. Such a system from the central to grassroots has formed the framework of rural distance education in China. The system adopts distance education means and focuses on both vocational training and education of farmers. A well-established and multiple schooling pattern has been formed. By the end of 2013, the system has offered practical technological training to 320 million person/times of farmers, Green Certificate training to 12.74 million persons, Sunshine Program training to 12.41 million persons, vocational diploma education to 4.64 million persons, post vocational education to 170,000 persons and higher education in collaboration with higher education institutions to 710,000 persons. Starting from 2006, CABTS had implemented "one million vocational students program" that aimed at training practical talents for rural areas, which targeted at farmers engaged in farm production and provided vocational education to train career farmers, with enrollment of 1 million in total. CABTS system with its schooling features of being close to rural areas, agriculture and farmers and centering the need of agricultural and rural economic and social development has evolved to a system that focuses on majors and courses of agricultural sciences. It has accumulated large quantity of high quality educational resources. The Central School has developed 416 types of textual teaching materials and it produces 240 hours of television educational programs, 520 hours of radio broadcast programs and 511 multimedia instructional courseware each year. In the future, it will continue to refine its products and brand name. CABTS system has developed a specialized instructional team. The central school hires about 500 well-known specialists from higher education and research institutions, which has formed a pool of instructors covering the major fields of agriculture and provided buttress to the development of major and specialty and courses. The CABTS system has also established a part-part instructor team with over 70,000 experts and instructors, which can meet the needs of frontline instruction, coaching and practicum. In line with local conditions, grassroots schools have been cooperating with agricultural development parks, agro-enterprises and farmer cooperatives for the creation of a number of practice and instruction bases of multiple channels and forms, for the exploration of training models in cooperation between schools and agricultural development parks, between schools and enterprises and between schools and farmer cooperatives.

### *2. Development and Innovation of Educational Means of Rural Distance Education in China*

Modern rural distance education in China with CABTS system has its major carrier has experienced 34 years of development. Its educational means have also evolved from a

single vector of radio broadcast to include multiple educational means such as radio, television and network.

### *2.1 Radio Broadcast*

From the beginning of its founding, CABTS has been using radio broadcast as its mainstream carrier of education, which is supplemented by self-learning, face to face coaching, slide shows and exercises for completion of learning tasks.

Education through broadcast at CABTS: following the requirements of educational plan and curriculum lecturers develop the required instructional contents into lecturing notes after studying textual teaching materials for broadcast at the Central People's Radio Station after audio recording; learners in rural areas receive education through listening to radio broadcast. This approach overcomes the limitations of time and space. Under the circumstances of limited educational resources, it offers more accesses to rural learners to education. In order to resolve issues of time-bounding and non-replication of education of radio broadcast, CABTS produces audio cassettes of the instructional contents of radio broadcast for distribution to learners who missed the broadcast or who still have unanswered questions to facilitate their supplementary listening or repeated listening. This is an instructional approach with programs that can be produced fairly easily at low cost and it has extensive audience coverage and convenience in use; therefore, it is well received by learners and has played vital role at the beginning of CABTS. The instructors are high qualified specialists; hence, such instruction can achieve very good results provided that learners increase the rate of listening.

Along with reforms in education with broadcast, CABTS in April 1999 rolled out a new column of Early Bus to Prosperity at China Central People's Radio Station, which focuses on practical technologies of rural areas. Once the column is aired, it is immediately well received by farmer learners. In 2013, CABTS at China Central People's Radio Station started two new columns of Morning News of Agriculture, Rural Areas and Farmers and Grand Classroom of the Countryside at the frequency of the Voice of Rural China. Hence, the air time has doubled, reaching 630 minutes weekly. Due to increase in instructional contents and the demand of rural learners for education, under the circumstances that China Central People's Radio Station has very limited broadcast frequency resources, CABTS through developing Rural Loud Speaker Program outreaches rural areas by converting more instructional resources into audio programs for broadcast by loud speaker stations to serve the needs of farmers. These efforts have obviously promoted the development of agriculture and rural economy.

Loud Speaker Broadcast Station is an important means in rural areas for announcements, activity organization, education and information dissemination and technological extension and it plays important role in rural economic and social life. CABTS will rely on the website of CABTS on-line to develop a broadcast information service platform to provide Loud Speaker stations with service of audio on-demand, download and upload,

exchange and interactions of announcers and provision of agricultural information. The information platform will have over thousand agricultural broadcast program and rich information resources in agriculture, rural areas and farmers, including agricultural popularization and explanation of agricultural policies and regulations, popularization of agricultural sciences and technologies, extension of practical technologies of agriculture, market information of agricultural products as well as cultural events of rural areas. Each day, new resources will be added; at the same time, the program of Early Bus to Prosperity of China Central People's Radio Station will be synchronized with the platform for downloading by the Loud Speaker stations, so as to timely broadcast in rural areas to meet the needs of farmers for information about agricultural policies, technologies and information and to uplift the use rate of rural Loud Speaker stations.

## *2.2 Television*

Along with the development of modern IT, television started to serve the purpose instruction of CABTS system. In February 1987, CABTS first of all started the column of Agricultural Education and Science and Technologies at Channel 2 of China Central Television (CCTV) to air instructional programs of CABTS and the time allocation is 30 minutes weekly. In 1995, the Agricultural Channel of CCTV officially opened up with the addition of the column of the Field of CABTS of 780 minutes weekly for airing instructional programs of CABTS; thus far, distance education program of CABTS has gained long-lasting development. In 2010, CABTS rolled out a television education column of Agricultural Production and Management at the modern distance education satellite digital channel for rural Party Members and leaders, which includes contents of two aspects of agricultural production and operation and agricultural technological extension. It has 9 sub-columns of crop farming techniques, scientific animal farming, policies and regulations, cooperative economy, market highlights, agricultural mechanization, storage and processing, biogas and life of rural households; the airing time is 420 minutes weekly. Education through television has its unique advantages in rural distance education. Firstly, it is intuitive, lively and rich with video presentation; it is easy to learn and use. Secondly, it has extensive coverage with rapid transmission. Where television signals can reach, learners can learn. Thirdly, the contents are rich with relatively low cost of production and repeated use after airing. Education through television maximized the intuitiveness of education and is conducive to enhancing the results of education.

In addition to airing at television stations, CABTS has also carried out further use of television instructional programs through the production of video cassettes, VCD and DVD for distribution at the instructional spots to enable learners to collectively watch. It is a very useful and effective approach for learning lab experiments and practicum lessons.

## *2.3 Network*

Entering the 21<sup>st</sup> century, rural distance education in China has also entered the era of

network driven. The China Rural Distance Education Network ([www.ngx.net.cn](http://www.ngx.net.cn)) developed on the Internet has great and potential advantages in delivering distance education and training and science and technology popularization. It has become a linkage of liaison for CABTS system and a window to outreach CABTS audiences; it will have more and more roles to play.

The China Rural Distance Education Network is embedded with a public service platform of farmer education, on which, CABTS on-line network ([www.ngonline.cn](http://www.ngonline.cn)) is established with synchronized classrooms, reaching network-driven of education and training. CABTS on-line has headline news of agriculture, agricultural video, radio broadcast of farming, agricultural technological repository, farmers library, network courseware, live network broadcast and expert consultation. It releases information of farmers' education and training, delivers on-line learning and on-line tests and implements instructional and course management, learning navigation, discussions and questions and answers, resources play and on demand and download, as well as management of learners' records. It hence provides conveniences to self-learning, exchange and information sharing.

Since CABTS shoulders different responsibilities in education and training, its Internet is also playing new roles. In delivering training for rural labor transfer, CABTS performed the tasks of development and management of rural labor transfer training network of MOA ([www.nmpx.gov.cn](http://www.nmpx.gov.cn)). In training of new type of career farmers, CABTS once again assumed the responsibilities of developing and managing the Website of Training of New Type of Career Farmers ([www.zhynm.cn](http://www.zhynm.cn)). An Internet-based working platform has been established for the dissemination of national policies and directives, providing dynamic information, delivering education and training.

#### *2.4 Satellite Network*

The satellite training network of CABTS is based on Skylaster system of an Israeli satellite communication company, which is satellite broadcast interactive DVB/IP communication platform. It has one central station, 2 two-way remote stations of CABTS, 31 two-way remote stations at provincial schools, 294 two-way remote stations in municipals and 260 two-way remote stations in counties. This system has very good user interface with strong functionality and compatibility. It can provide distance training, video conferencing and resources transmission services.

#### *2.5 Others*

The development of science and technologies including IT has fostered continuous enrichment and development of rural distance education means of China. In addition to the traditional means of radio broadcast, television, Internet and computer courseware, mobile phone, mobile classroom and multimedia repository (digital mobile player) have also come into being and been widely used.

Mobile phone: mobile learning based on mobile phone has gained more and more applications along with the popularization of mobile phones in rural China. At present, text messaging is the prevailing service, which covers all aspects of agricultural production and farmers' life including news in agriculture, agricultural policies, weather, production techniques, market information, forecast of pests as well as farming seasons and affairs.

Mobile classroom: it is also called Caravan of Agricultural Science and Technologies to outreach farmer households. In 2005, CABTS implemented the program. The first batch of 150 vans was equipped with computers, projectors, screens, TV, DVD player, radio and recorder, sound mixer and speakers to facilitate outreaching farmers at their homes and fields with local agricultural technologies and textual teaching materials, VCDs and cassettes required in daily life of farmers. It helped address the issue of last mile in information transmission and science and technology popularization. In 2014, CABTS will upgrade its Caravan systems to add more advanced instruments and equipment for product and soil testing and analysis.

Digital player: it is also called multimedia resource repository for farmers' education and training. It is a digital terminal specially developed for the education and training of farmers, agricultural technology extension and information service. The repository is preloaded with large quantity of digital resources for farmers' education and training; it supports audio, video, text, images and multimedia courseware. Once it is connected with a TV or project, it can directly play the contents with easy operation and strong mobility. It is suitable for the use at township and village learning stations, training bases and farmers' libraries.

The integrated use of distance education means has cashed in the advantages of high quality education resources. Continuous exploration and application of new IT and modern media for the development of rural distance in China has made great contribution to increasing farmers' access to knowledge, hence it helped improve farmers' skills and contributed to the development of agriculture and rural economy of China.

### *3. New trend of the development of educational means of rural distance education in China*

#### *3.1 Extensive Use of the Internet*

According to statistics of China Internet Information Center, the share of rural residents among netizens in China was 28.6%, reaching 177 million by the end of December 2013, an increase of 21 million on the bases of 2012. The growth rate of rural netizens in 2013 was 13.5%, while it was 8% for urban area. The gap in the numbers between rural and urban netizens is closing.

One of the future directions CABTS will pursue is to create more opportunities and build a platform of higher education. From radio broadcast program at early stage to today's distance education networks, public service platform of distance education has experienced tremendous development and changes. The exploration of the emerging on-line education cloud platform will be conducive to providing an indicative direction to agricultural distance education.

My interest of research is the education platform of Coursera that has drawn extensive attention in education circle of China and overseas. It is high end on-line free course developed by professors Andrew Ng and Daphne Koller of Stanford University. Its objective is to cooperate with top universities to help them create on-line free courses. By far, they have created virtual university campuses with 33 top universities, and provided 198 courses in 18 disciplines for learners to freely choose. With the initial investment of 16 million USD, they secured additional investment of 3.7 million USD from California Polytechnic State University, Pennsylvania University and the current investors. The enrollment of students of the resources has exceeded 1.5 million from over 190 countries and regions and the number of registered students at the website has reached 680,000.

China has many agricultural universities. Many farmers after skillfully mastered certain type of technologies want to update their professional knowledge and they want to solidify their basic knowledge in agriculture; therefore, there is imperative and solid demand. In my view, the distance education cloud platform of CABTS has the potential to cooperate with well-known agricultural universities in China and help universities to create on-line courses to enable farmers to learn and strive for higher education degrees through distance education. Through open learning approach, farmers will be able to share first class education resources.

### *3.2 Mobile Phone Plus Television*

Communication tools used in rural areas vary. The number of Internet users is increasing. However, data also revealed that 71.4% of farmers cannot use the Internet. The most popular equipment in rural areas remains to be mobile phone and TV.



*Internet users compare cities with rural areas*

The efficiency of learning is low if only listening to lectures. The use of some functions of mobile phone such as text message for questions and answers with incentives to users will improve the efficiency of learning.

The traditional TV education program is a passive education mode without interaction and feedback from learners. Looking at the course design, the only way to attract the students is to improve the contents, which can be achieved through the following three aspects.

Firstly, contents must be well targeted and with strong practicality, so that farmers can easily see that what they are learning is directly related to their economic returns. This will motivate farmers' interest in learning.

Secondly, contents must be refined and concise. Comparing with urban environment, farmers do not have many opportunities to access large amount of new information and knowledge, therefore, they will not be very skillful in accepting and understanding new knowledge. As such, instructional contents should be broadcasted as concise as possible to effectively transmit information in short time.

Thirdly, contents must be interesting and easy to understand so that farmers will enjoy learning.



# The use of radio media in farmers' education and training

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*Abstract:* The Central Agricultural Broadcasting and Television School (CABTS) is a specialized institution that delivers education and training to farmers via multimedia education approaches including radio, television and network. Radio media as the distance education means adopted by CABTS at its earliest stage, embedded with features such as extensive coverage, fixed broadcast time, authentic contents and rich program resources, has played important role in popularizing agricultural policies and farming technologies and helping farmers increase income for prosperity. Along with the development of modern agriculture, education and training of farmers are related not only to the improvement of the competence of farmers, but also to the issues of food security of China or even the world. This paper presents the important role played by radio media – the advantageous edge of CABTS system – in the education and training of farmers. It further analyzes the necessity for CABTS system to continue to better use radio media in view of the new situation and tasks in agriculture, rural area and farmers. It also elaborates how to produce targeted and attractive programs centering the needs of agricultural development and farmers. In association with farmer training programs of the national and local levels such as the Sunshine Program, CABTS will make efforts in producing thematic programs; establish rural radio information service platform and provide services such as VOD, uploading and downloading of local agricultural broadcasting and television schools. CABTS will strengthen the consolidation of medias of network and mobile phone to broaden the use of broadcast media and information dissemination channels. It further discussed the paths, countermeasures and recommendations for better use of radio media in CABTS to deliver education and training of farmers at the new stage.

*Key words:* education and training of farmers, radio media, modern agriculture, challenge, countermeasures

## *1. Broadcast Media Is an Important Platform for Education and Training of Farmers*

Founded in December 1980, China Central Agricultural Broadcast and Television School (CABTS) is a specialized institution for training and education of farmers via multiple means and channels, including broadcast, television and networks. Broadcast media was adopted at early stage of CABTS and it has become an important approach for delivering education and training to farmers, popularizing agricultural science and technologies and agricultural knowledge.

### *1.1 Broadcast Programs Are Important Resources of Delivering Training and Education to Farmers*

In 1981, CABTS started to air vocational school courses via China Central People's Radio Station, which was transformed to "Early Bus to Prosperity" in 1994, and aired 150 hours each year at the frequency of the Voice of Rural China. In September 2012, the first set of nationwide agricultural broadcast frequency – the Voice of Rural China started and CABTS hosted columns of Morning Broadcast in Agriculture, Rural Area and Farmers and Grand Classroom of Rural Area. Thus far, CABTS has three columns at national broadcast media. It airs 1.5 hours of program daily and has become an important platform for information dissemination of the Ministry of Agriculture and delivery of education and training to farmers. According to statistics, CABTS system at present has over 50 agricultural broadcast columns in the country and over 20,000 loudspeaker broadcast stations in rural areas. CABTS schools at various levels produce large quantity of broadcast programs for airing via radio stations or loudspeaker broadcast stations in rural areas, which has become an important resource of education and training of farmers.

### *1.2 Broadcast Media of CABTS System Has Its Unique Advantages*

With over 30 years of development, CABTS has developed a broadcast media application framework with its unique advantages, in which, broadcast column of CABTS takes the lead with broadcast columns of local agricultural broadcast schools as the buttress and loudspeaker broadcast stations in rural areas as the grassroots network.

#### *(1) System advantage*

CABTS has five-level schooling system including central to provincial, municipal and county agricultural broadcast schools and township instructional classes, which distribute broadcast programs to grassroots and timely collect feedback from audiences about their diversified needs in order to provide targeted education and training services.

#### *(2) Specialization advantage*

CABTS has the support of the most authoritative agricultural expert team in the country; it integrates the development of broadcast programs with agricultural training projects to achieve maximization of results of education and training.

#### *(3) Resources advantage*

CABTS each year produces over 500 hours of broadcast program resources of different types with rich contents and technical authorities, which not only meets the needs of

broadcasting by national broadcast media, but also can be used by local agricultural broadcast schools for airing, or can be translated into minority languages for broadcasting.

#### *(4) Media advantage*

Broadcast media transmits fast with extensive coverage; it also offers openness and flexibility in training, which are very conducive in breaking away from the limitations of time and space of the traditional education and training approaches. Particularly, at the onset of disasters such as earthquake or in specific environment of remote areas, broadcast has advantages that can not be replaced by any other media; and in such circumstance, broadcast is absolutely the “first media” at the time.

### *1.3 Broadcast Media Plays Important Role in Education and Training of Farmers*

In the 30 years of schooling, broadcast media has been extensively used in training and education of farmers; it has become an important carrier and effective approach to improving the quality of farmers and promoting agricultural development. (1) It is a window for disseminating agricultural policies. Through broadcast program, national policies of agriculture, rural area and farmers are transmitted to hundreds of millions of rural households in the country; at the same time, policy interpretation and answers to questions are offered. (2) It is the major theater of training of farmers. In support of the projects carried out by CABTS systems, CABTS produces programs to deliver thematic training to nurture large number of practical talents and new type of career farmers in rural areas. (3) It is a platform of popularizing agricultural science and technologies. Through producing and airing practical technical programs, it popularizes agricultural sciences to promote modern agricultural development. (4) It is a channel of delivering information service. It provides agricultural information, tips of farming and agricultural weather services to facilitate production and living of farmers.

## *2. New Situation and Tasks Faced in the Application of Broadcast Media*

Along with changes of the situation of agriculture, rural areas and farmers and the advancement of modern information transmission technologies, broadcast media of CABTS system faces new situation and tasks, as well as new opportunities and challenges.

### *2.1 Building Better-Off Rural Society Needs Broadcast Media to Serve the Country and Broadcast Media Has Important Role to Play*

If China wants to be strong, agriculture must be strong; if China wants to prosper, farmers must prosper. Whether China can achieve better off, the key lies with farmers.

The key and difficulties in building all round better off society in China remain in rural areas. Farmers as the subjects of building better off rural society, their quality will directly determine the level of agricultural productivity and the progress of constructing rural better off society. According to statistics, the average number of years of education of farmers in China is less than 7 years. Among the 480 million rural laborers, 40.3% of farmers have primary school education or illiterate or semi illiterate; 48% of farmers have middle school education, 11.62% have senior high school education and only 0.5% of farmers have college or above education. Surveys carried out by the Ministry of Agriculture indicate that less than 1/3 of farmers have basic knowledge about pesticide application. Low level of science and technologies of farmers has constrained the improvement of prosperity capacity, which has become an important factor affecting the realization of better off rural society. In order to resolve the issues, there is the need to strengthen education and training of farmers. It demands broadcast media to center the construction of better off rural society to proactively disseminate agricultural policies, promote strategic adjustment of agriculture and rural economic structure and support the transformation of agricultural growth pattern. There is the need to carry out more actively and popularize education and training of farmers to improve their quality. Agricultural technologies need to be popularized. At the same time, there is heavy task in nurturing large number of agricultural talents who have good command of modern agricultural science, technologies and knowledge, so as to achieve agricultural production and efficiency increase and farmers' income growth for prosperity. These efforts will provide human resources support and guarantee to speeding up the construction of better off rural society.

## *2.2 Training of New Type of Career Farmers Needs Broadcast Media to Strengthen Training and Improve Quality*

It is the imperative need to strengthen training of new type of career farmers and practical talents in rural areas for the construction of socialist new countryside and realization of agricultural modernization. Without well-educated farmers, there will be no highly modernized agriculture. Strengthening education, improving agricultural laborers' education, science and technology levels, training of new type of career farmers who have good knowledge of production and management with specialized skills and strong sense of social responsibilities are the preconditions of agricultural modernization, which is therefore the imperative and heavy task of education and training of farmers. It in turn demands broadcast media to provide agricultural broadcast programs that satisfy farmers. The functions of broadcast media in education and training, science and technology popularization should be fully tapped to strengthen training of new type of career farmers who have education and understand technologies, with good skills of production operation and management, which will resolve the issues that "who will farm the land" and "how to farm the land"; it hence will contribute to national food security. At the same time, along with ever improving of farmers'

education and their science and technology levels, the demand of farmers for training will increase, which requires broadcast media to capture the needs of farmers for income growth for prosperity, improving quality, learning new knowledge and production skills to continuously enrich contents of training, better education delivery approaches, improve quality and enhance targeting and practicality of programs.

### *2.3 Rapid Development of New Media Needs Integration and Complementation of Broadcast Media*

At the present society, science and technology develop rapidly such as network and mobile phone medias have also advanced substantially. The means of information transmission have been diversified. The channels through which people learn new knowledge and receiving training have increased, which presents tremendous pressure onto the survival of traditional broadcast media; listeners of radio broadcast have been substantially eroded. Facing the challenges brought about by new medias, broadcast media must cash in the new technologies to overcome its shortcomings, to fully absorb the advantages of new technologies and transmission rationales in order to integrate, consolidate and link with new medias to create individualized broadcast products, which will facilitate transformational development of broadcast through innovations. Integration means that broadcast programs should be integrated at the new media user terminals of television, network, mobile and computers to achieve full integration. Consolidation means that broadcast media should be consolidated with resources of new media programs, human capital and audiences to realize win-win in sharing resources and cooperation. Linking means that broadcast media should be linked with advantages of new medias in contents and transmission approaches to realize complementation and overall value addition of advantages.

### *3. Recommendations for Better Using Broadcast Media in the New Situation*

Facing the new situation and tasks of agriculture, rural area and farmers, broadcast media of CABTS system has broad theater and development potential in training and education of farmers. It should cash in the opportunities and adopt flexible strategies to put its advantages into full play and realize its value.

#### *3.1 Centering Agricultural Development and Farmers' Needs, Targeted and Attractive Programs Should Be Produced*

Based on agriculture, rural areas and farmers, we must carry out needs assessment and have good command of agricultural policy information, production situation and the future development trend of agriculture, as well as the needs of farmers for training and education, their preferences of learning and habits of listening to broadcast, so as to deliver targeted training.

*(1) Subjects should be identified centering agricultural development*

In line with the grand situation and priority of agriculture and rural works, as well as modern agricultural development, the construction of beautiful rural areas and training of new type of career farmers, program selection should be systematically planned to fully cash in the leading functions of broadcast media in information dissemination and popularization. Deliberations on subject selection, planning and the formulation of training projects should be strengthened. Centering high yield and high quality, disaster reduction and prevention, green and safe agricultural technologies, agricultural policies, farm operations and management and product marketing, subject selection should capture the leading varieties and technologies recommended by the Ministry of Agriculture. Subject selection should be carefully done to reflect the timeliness and practicality of programs to increase targeting of training.

*(2) Contents should be selected centering farmers' needs*

Surveys carried out in the past indicated that the needs of farmers for the contents of broadcast focused on agricultural sciences and technologies as the first priority, which were followed by news and information, supply and demand information, and laws and rights protection. Therefore, the selection of programs should aim at meeting the actual needs of farmers. Contents should target at training needs of farmers, which would include traditional farming technologies as well new knowledge about the emerging logistics and operation of family farms. Skill training of farmer migrant works, migrant employment, market demand and supply and agro-laws and regulations are also needed in rural areas. The correct selection of contents will enable farmers to get what they wanted in learning technologies and to meet the diversified and individualized training needs of farmers.

*(3) Means of delivery should be selected in line with the characteristics of farmers*

In line with the actuality of farmers' education and habit of listening, the presentations of programs should be those popular among farmers. Knowledge and technologies should be cleverly integrated into the presentations. Situational models, story telling, on-site demonstration and interactive models that are easy to understand and lively should be used for broadcast so to as stimulate the interest and participation of listeners. As such, farmers can understand through listening, can master through learning and can use it once mastered. For instance, we produced 25 episodes of "Swine Disease Control Program". We invited one able man in swine production to the studio. The episodes were based on 25 common swine diseases, and each episode started with popular saying related to the subject. The concise popular saying integrated the characteristics of disease breakout, occurrence pattern and prevention knowledge. In the process of interpreting the popular saying and in association with the experiences of the able man as well as the recommendations of specialist, each disease was explained in great details.

Meanwhile, short stories were embedded in the process of popular saying telling so as to induce the key technologies and knowledge of scientific swine production. The entire program used plain language with lots of witty and funny sayings. The presentation was very lively and the technologies were practical, which were well received by audiences. Practice has proven that, when we put ourselves in the shoes of farmers and consider farmers' needs and the presentation language and forms farmers prefer, broadcast programs will be full of farmers' flavor, which will then be appreciated by farmers.

#### *(4) Broadcast should be arranged in line with different audiences*

Focusing on the audience and optimizing structure to carry out focus transmission to enable programs to suit the listening habits and learning preference of farmers. For example, in the three columns we broadcast through China Central People's Radio Station, programs are positioned in line with different airing time and audiences. Morning News of Agriculture, Rural Areas and Farmers are aired in the morning (5:30-6:00), which uses information dissemination plus thematic interviews. Rather than competing with other news programs of the frequency in terms of speed and the amount of information, we focus on different perspectives and in-depth of programs, while the target audiences are most cadres of agriculture and new type of career farmers. Grand Classroom is aired at the golden time of evening (21:30-22:00) and it focuses on farm production and management, development of rural ecological civilization. More efforts are put in the integrity, continuity and funniness of program contents. The target audiences are rural laborers and women engaged in agricultural production. The column of Early Bus to Prosperity in the past 30 years has been focusing on the priority of agriculture and its main contents are practical technologies. At present, the three columns have their respective and relatively stable audiences.

### *3.2 In Association with National and Local Programs of Training and Education of Farmers Such as Sunshine Program, Thematic Programs Should Be Produced*

Participating and hosting programs of education and training of farmers is an important responsibility and task of the broadcast media of CABTS system. In recent years, the Ministry of Agriculture has implemented important programs including Sunshine Program of Training of Rural Laborers, Wisdom Farmer Program and Training of Rural Practical Talents. The application of broadcast media is integrated with these programs to produce broadcast programs in line with industries and specializations of production to deliver thematic and targeted training. The efforts have speeded up the training of new type of career farmers and subjects of new type agricultural production and management, and enhanced farmers' production and farm management skills.

*(1) Program production centering special technologies of agriculture*

With grain, cotton, oil-bearing and sugar crops as the priority, series of broadcast programs of high quality and high yielding farming technologies should be produced to train backbone farmers in the implementation areas of building high yield grain, cotton, oil and sugar crops zones. With production technologies of green and organic vegetables, thematic programs for vegetable production should be produced to train backbone farmers in the production bases of “vegetable basket” products. With scientific cattle, sheep, swine and fish rearing as the priority, thematic programs of livestock, poultry and aquaculture production should be produced to train farmers and herders and aquaculture farmers in counties featuring beef cattle, sheep, dairy cattle and swine production and aquaculture production. Through training, farmers who received training will play leading role in technology extension and application, production management and operations.

*(2) Program production centering agricultural vocational skills*

Targeting at members of national demonstration farmers’ specialized cooperatives and provincial key specialized cooperatives, skill-training programs should be produced in line with the type of industries of cooperatives. With farm machine operators of specialized cooperatives, farmers who purchased farm machineries and employees of socialized service organizations as the target of training, programs in farm machinery operation, maintenance and repair technologies, pest control technologies, green control technologies and scientific application technologies should be produced. Centering activities of “building beautiful countryside”, programs should be produced in agricultural ecological environment protection, ecological improvement of countryside and water and land pollution prevention.

*(3) Program production centering business initiation in agriculture*

In line with the objectives of training of new type of career farmers and highlighting core contents of farming skills, programs featuring on different stages of production from planting to harvest and from production decision-making and product processing should be produced to deliver targeted training to audience selected. Efforts will be made to train farmers who are engaged professions of production and management, specialized skills and socialized service. For training of leaders and agents of specialized cooperatives, programs in business management and farm produce marketing should be produced. In association with business initiation and employment of rural youth, programs should be produced to increase their capacity of business initiation and employment in crop and animal farming, agro-product processing, agricultural product marketing and agricultural services, so as to promote change of farmers from labor-based to intelligence-based production and to achieve interactivity of enriching the brain and the pocket.



### *3.3 Building Information Service Platform of Rural Broadcast to Deliver Services to Farmers*

At information era, the application of broadcast media towards information driven and digitalization is the mega trend. CABTS with the support of CABTS on-line website has established broadcast information service platform. The broadcast resources accumulated over 30 years in the past have been classified and sorted out and stored in systematic instructional resources repository. Each day, the audio and texts of three columns aired at China Central Radio Station are synchronized with the repository, and it provides to agricultural broadcast and television schools at various levels and rural loudspeaker broadcast stations with programs on demand, download and upload of programs and agricultural information. At present, the platform has several thousands agricultural broadcast programs and rich information resources of agriculture, rural areas and farmers. At the same time, agricultural broadcast and television schools at various levels have been carrying out activities of outreaching rural villages and households with broadcast media. In the process of building a platform and serving farmers, we are interested in three integrations.

#### *(1) Integration of program development and distribution of disks*

On one hand, CABTS takes its advantageous edge of human resources and equipment and cooperates with provincial schools to jointly plan and select subjects and produce programs to continuously uplift the capacity of program resources development and production to offer on-demand services to farmers, as well as provide upload and download services to agricultural broadcast and television schools at various levels. On the other hand, CABTS will cooperate with agricultural education audio and video publishing house and agriculture broadcast and television education newspaper to distribute program resources, media resource disks and newspaper, so as to send practical technological materials to demonstration villages and households.

#### *(2) Integration of unified, localized and minority language teaching materials*

CABTS produces unified training materials in support of program contents of its branch schools. At the same time, CABTS guides branch schools in line with the actuality of farmers and agricultural production of local areas to produce localized and specialized teaching materials for farmers to learn and use. In addition, each year a batch of programs are dubbed into Uygur, Mongolian and Korean to enrich broadcast program resources in minority areas.

#### *(3) Integration of broadcast column with loudspeaker broadcast*

Efforts will be continued to maintain the well-known programs aired at China Central Radio Station, i.e. Early Bus to Prosperity, Morning News of Agriculture, Rural Area

and Farmers, and Grand Classroom of Rural Areas. In association with the priority of the Ministry of Agriculture and agricultural production season, programs will be arranged in a scientific way to maximize reception. At the same time, activities such as outreaching villages and households will be carried out on the ground to expand the impact of the programs on the society. The unique functions of extensive coverage in terms of audiences and area and rapidness of transmission, efforts will be made to improve the results and capacity of serving agriculture, rural area and farmers. In addition, the loudspeaker broadcast network with 20,000 loudspeaker stations in rural areas will be used to broadcast programs needed by farmers to resolve the issue of last mile of agricultural science and technology information transmission.

### *3.4 Integration with Network and Mobile Phone Media to Broaden the Application of Broadcast Media*

Darwin once said that species that survived are neither those strong nor those smart, but those can positively respond to changes. Facing the challenges of new media, broadcast media must actively respond to changes and cooperate with new medias for common survival. The concept of sharing in development and use should be strengthened to achieve integration, consolidation and linkage with new media and to continuously broaden the application of broadcast media and transmission channels.

#### *(1) Building vertical training platform*

We will tap the system advantages of vertical integration of CABTS as well as the three-in-one information transmission advantages of integrating broadcast, television and Internet to graft broadcast media with Internet, mobile phone and pad computers, for building vertical learning platform suitable to different environments, different time allocation and different methods. For instance, the Voice of Rural China aired via Central People's Radio Station used the Internet and mobile phone platform for on-line transmission of audio programs, which has effectively expanded transmission channels of broadcast programs.

#### *(2) Building diversified learning terminals*

Diversification of terminals is a remarkable feature of new media. Broadcast media can fully use diversified terminals. Through network transmission, digital information technologies, R&D of single or multiple media terminals, we can enable farmers to receive the audio of agricultural broadcast through mobile phone, computer and television, so as to expand the transmission scope of broadcast and increase the choices of audiences. In this process, the use of mobile phone is particularly important. At present, mobile phone users in China have reached 700 million and the number of farmers with mobile phone is also increasing, and mobile phones are with farmers all

the time. For example, Fancun Village of Xizhangcun Township of Henan Province has over 3,100 villagers, of which, 1,800 villagers have mobile phones and most of which can browse the Internet. Using the handy mobile phones, one can easily listen to broadcast programs at any time and location.

### *(3) Conducting interactive learning and exchange*

The traditional broadcast has obvious advantages in listening on the move, but it has shortcomings in interactivity. The integration with the advantages of new media will need tremendous amount of work in interactivity. At the same time of broadcast media transmission, applications including phone, text, blog, We chat and QQ as well as social activity tools must be used to achieve interactivity and exchange between the broadcaster and the listener. What listeners wanted to listen and whether listener wanted to listen in details or briefly can timely feedback to the broadcaster. The integration of openness and flexibility, participation and interactivity can not only materialize menu broadcast, but also improve programs and enhance the results.

In short, we will start from the new situation and new tasks as well as foundations built in the past years to develop broadcast of CABTS system into a specialized broadcast in the construction of new countryside and modern agricultural development through providing services in information and technologies. We will strive to make broadcast as a practical radio to serve the needs of farmers and a broadcast close to farmers.

# **Revamping the learning management system to provide a successful learning experience**

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Multi-mode education is fast becoming a norm now at most learning institution especially institutions offering online learning. The blended mode is the most adopted mode of learning, as it provides both face-to-face interaction as well as online support to learners. Currently, online support revolves around the Learning Management System (LMS) that allows students to practically manage their account to doing their learning on line. The current LMS only supports matters related to learning content and administrative transactions while learning motivation are left with learners. However, with the advancement of ICT today, more can be done in terms of boosting learners' engagement, providing better learning support and boosting learners' motivation. Open University Malaysia (OUM) realises and recognises the importance of these two features, thus it sees the need to improve and enhance its current LMS called myVLE to provide its learners with better learning experience. While many enhancements are done to the current myVLE, two most prominent ones are the forum page and a self tracking button. In order to boost learners' engagement, the course forum has been revamped with better interface and it now highlights the top (most) three active threads at the top of the forum page. This will provide quick understanding to learners and eTutors on what are the main concerns of the learners. Another important feature is the self tracking button where learners have the option to track their learning themselves. By doing this, they will be able to engage other related features. OUM understands how challenging it is to be self directed learners especially when juggling between work and learning. With these enhancements, OUM hopes to guide and provide its learners with better support and motivation that will lead to successful learning experience.

Keywords: multimode, LMS, VLE, myVLE, learning support, OUM

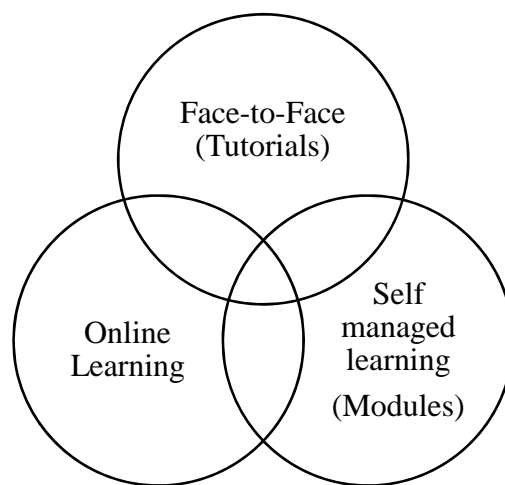
## **Introduction**

The advancement in online technology over the last decade has created new and exciting delivery models in teaching and learning. Online courses have now becoming more and more popular due to several changes that took place within the last decade. Firstly, the internet has become a necessity rather than a privilege even in many developing countries. Internet access and infrastructure are faster and wider, with personal connection and public wifi readily available in most places. Secondly, the majority of the current workforce is the 'connected' Generation Y which is more open and more ready to embrace this form of (online) learning. They are more susceptible to the idea of lifelong learning as opportunities for them to move forward in their various careers. Thirdly, the introduction and popularity of Massive Open Online Courses (MOOCs) by renowned learning institutions, is seen as the way forward to many learning institutions. This new paradigm of bringing learning to the people instead of bringing people to learning, as mentioned by Elliot Masie of Masie Centre, is seen as the future of the education industry and because of this belief, we can see the convergence between contact and distant education rising. With the rise of online

education, many turn to the blended approach as a model for teaching and learning which many deemed suitable for this environment.

### **Blended Approach**

In its simplest form, blended learning simply means the combination of face-to-face and online learning. It is also known as hybrid learning (Kaleta, Skibba, & Joosten, 2006) to some. Though it is mentioned here that blended learning constitute of these two main components, we should not conclude that all blended learning are the same as different institutions interpret blended learning and the weightage of its components differently. To Open University Malaysia (OUM), the blended approach (Fig 1) constitutes of three components; face-to-face tutorials, online learning and self managed learning. This has been the learning mode offered by OUM since its inception in 2000.



**Figure 1:** Blended pedagogy

### **Learning Management System**

With blended approach there is a need for the institution to engage some form of Learning Management System (LMS) to manage all aspects of learning in an online learning environment. OUM has its own in-house LMS called Virtual Learning Environment (myVLE) that manages all courses it offers. With myVLE the university is able to offer the online components of the blended approach with features such as eContent, online submission of assignments, discussion forum and resource links to a name a few. However, the mode of learning remains as a single approach which is the blended approach as discussed above.

### **Successful Learning**

Before we talk about successful learning, we will take a look at what are some of the challenges learners face as online students in general and with myVLE specifically. In OUM, the general challenges faced by 'at risk' online learners according to Latifah, et al. (2006), are "time management (27%), followed by work demands (18%) and lack of study skills (16%). Lack of proficiency, particularly in Mathematics and English, also appears to be a problem. Finally, as adults, they also have to grapple with family and

financial problems”. Challenges specifically related to myVLE as stated by Mansor and Latifah; “learners found it (myVLE) not too user-friendly, the navigation tool can be quite cumbersome and access can sometimes be quite slow”. Eliminating these frustrations (of learners) by providing quicker access and better features in myVLE therefore seems logical in order to increase their feeling of being more successful in their total online learning experience. Based on these assumptions, successful learning, therefore, in this context means; easier webpage navigation, faster access to content, learning at their own pace and the availability of learning support.

## myVLE

Over the years, based on feedbacks from users, mainly learners and tutors, more contents and features are added to the existing myVLE. Since the original design does not take into account these new additions, myVLE team are left with the task of thinking how best to incorporate these new features into the LMS. This is to be done with minimum disruption to the existing user interface (UI). However, the enhancements ended up more like ‘patch’ work, where sections are created and inserted onto the page as new buttons or whenever there is no space left on the page, links are created. Besides these new additions, the existing myVLE has to also deal with new technologies especially in the mobile segment such as tablets and smart phones. The characteristics of mobile devices were not taken into account previously simply because at that time these devices were non-existence or not so popular. These new developments have prompted OUM to relook at the existing myVLE and it was decided that a revamp would be proper.

The decision to revamp myVLE came at the right time as the university is also looking at alternative ways to provide instructional support and engaging learners. One of the main criteria for revamping is to address issues voiced by learners and create successful learning as discussed above. It means the team now has a freer hand to dismantle the existing myVLE and reassemble it to meet the needs of current learners who are described as digital natives by Prensky (2001).

## New Changes

The most obvious change to myVLE must be the look and feel of the whole webpage. The revamped myVLE looks cleaner and has simpler navigation. The text-driven interface has been replaced by icon-driven interface (Fig 2). One of the reasons for this move is to make the interface intuitive in order to make it more user-friendly. The use of icons fit this purpose as symbols are recognisable and easier to associate with just like the traffic symbols we see on roads.

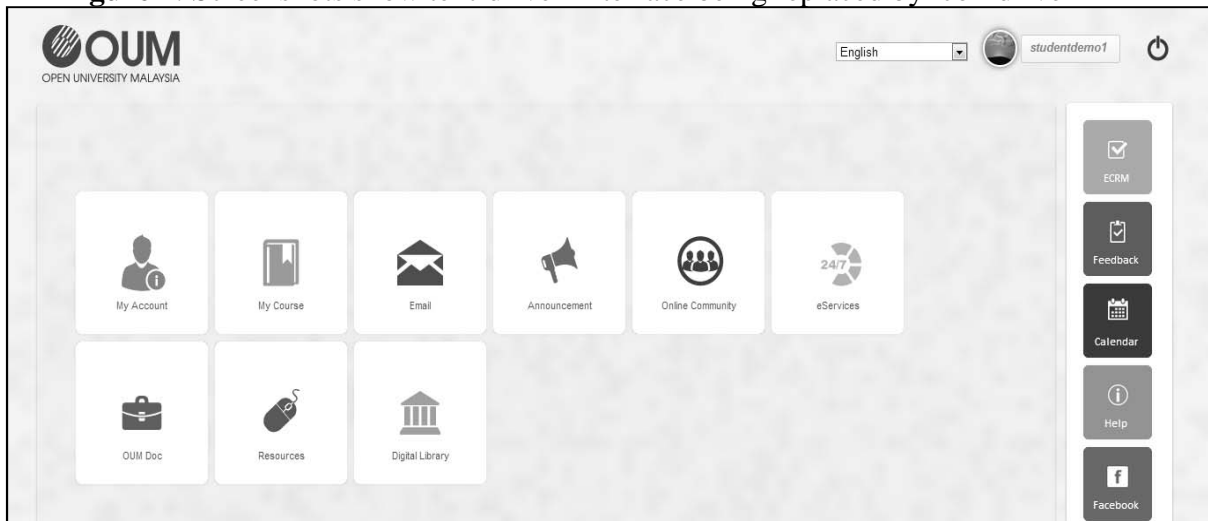
## Text-driven interface

The screenshot displays the myVLE interface with a text-driven layout. At the top, there is a navigation menu with links: Home, myProfile, eServices, Email, Library, Resources, OUM Doc, Academic Calendar, and System Admin. A search bar is located on the right side of the header. Below the navigation, there is a 'WELCOME' message for user 'iteo' with login details. The main content area is divided into two sections: 'myCourse & Quick Links' and 'Online Community'. The 'myCourse & Quick Links' section contains a table with the following data:

Subject Code	Subject Name	Group Tutors	E-Tutors	Study Mode	Assignment Due Date
OUMH1203	English For Written Communication	-	-	Blended	-
OUMH2103	English For Science And Technical Purposes	-	-	Blended	-
MPW1113	Bahasa Kebangsaan A	-	-	Blended	-
OUMH1103	Learning Skills For Open And Distance	-	-	Blended	-

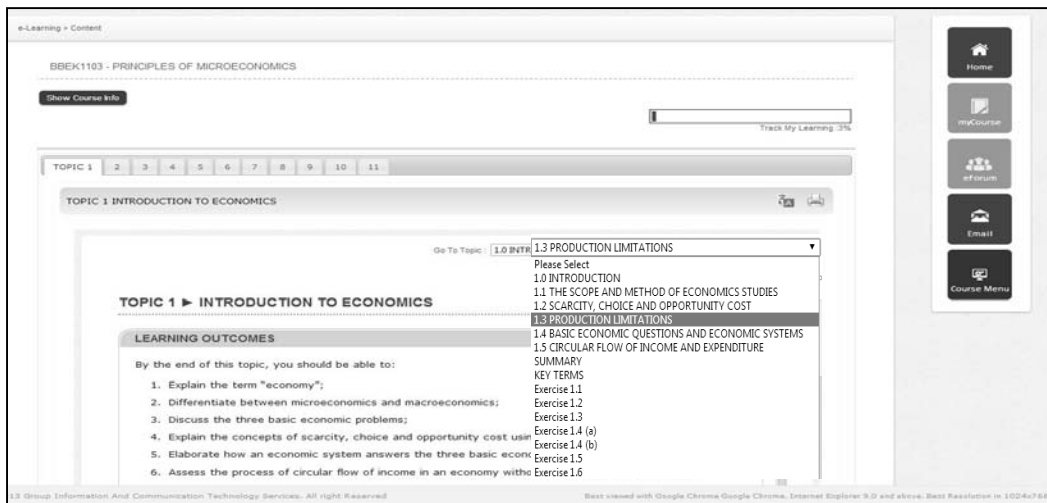
## Icon-driven interface

**Figure 2:** Screenshots show text-driven interface being replaced by icon-driven



interface in the revamped version of myVLE

The second change made to myVLE is to address issues related to navigation as well as content loading time. In the past, the number of clicks users took to reach the targeted content varies from a click to up to 5 clicks. This generates some negative feedbacks from users who claimed they got lost navigating to/through the content, while others claimed that once they got to the content, the loading time took too long. The revamped myVLE boasts of cutting the numbers of clicks down to 3 clicks to reach any content. The team also looked at how contents are pushed to the users. Previously learning topics are pushed per topic to learners, meaning users have to wait for the whole topic to load before it appears on their screen. This has changed as learning topics are now pushed in 'digestable' chunks, basically according to the sub topics found in the learning modules. Pushing learning contents in chunks helps speed up loading time as well as making them more manageable on smaller screens such as on tablets and especially smartphones. Users can get to the desired content quickly with the jump-menu found on top of each section (Fig 3).



**Figure 3:** The jump-menu helps users get to desired content faster

The third initiatives are to provide learners with a more structured learning support. The majority of OUM learners are working adults who have little time to juggle between the different roles they took up. These learners felt ‘at lost’ when they missed their tutorials due to other commitments. They also need more support in terms of resources related to their learning. The team took all these factors into consideration and provide the learners with many additional supports (Fig 4) such as ‘pre-posted’ e-forum discussion questions in their forums, additional resources related to their learning, a quick self test to check their understanding and active reading lists that are basically hyperlinked directly to OUM’s digital library.

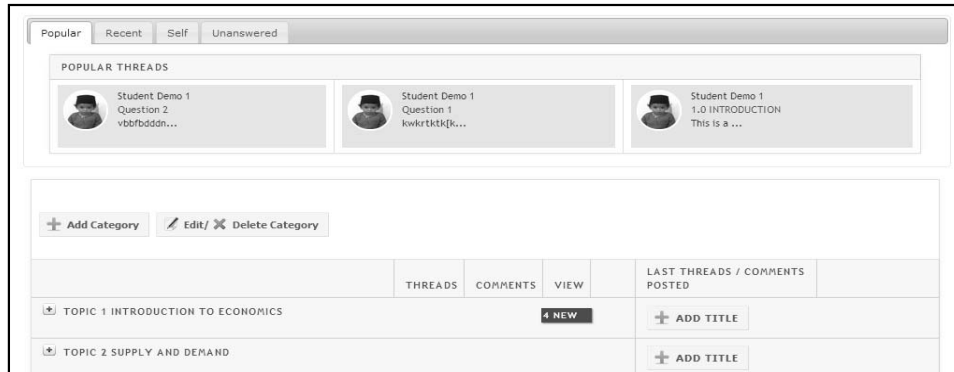


**Figure 4:** Learning support tabs under each topic

Within this initiative, the forum page is the one undergone most changes with additional features. Besides its format change to be more ‘facebook’ like, the more prominent change is the addition of new feature which highlights three most active threads on top of each forum page in their respective forum group (Fig 5). This receives

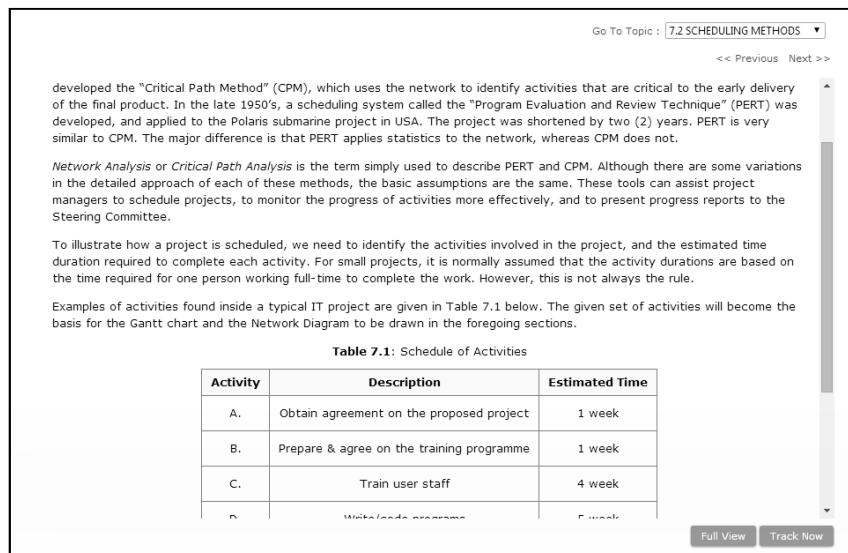


positive feedbacks from learners as well as tutors as they felt they can now quickly understands what are the main concerns of their groups by reading the most discussed topics.



**Figure 5:** Three most active threads are highlighted on top of the forum page

The final major changes to myVLE would be the ability for learners to track their own learning. Previously learners only track their learning manually and on their own effort. With the new myVLE, learners can now track their learning online and in real-time. The responsibility of tracking the learning is left to the learners themselves. At the end of every content page is a tracking button where learners can press (Fig 6) if they are confident that they have mastered the content there. A tracking bar will appear on top of the content page indicating in percentages how much learning has the learners mastered. This will give learners an idea of how much they have learned and how long they have left before the examination day.



**Figure 6:** The tracking button can be seen on the bottom right corner of each content page

### Full Online Mode

With the availability of the learning support components, learners are empowered to be more self-directed in their learning. OUM believed with this set up they can now provide learners with another learning mode which is fully online. Under this new full online mode, face-to-face tutorials are replaced by video lecturers and physical modules are replaced by online versions which can be downloaded or printed if/when needed. In November 2013, OUM indentified 8 courses that will be offered using this new mode for its January 2014 semester, with another 14 courses identified for May Semester and 15 courses earmarked for September semester (Fig 7). Generally OUM receives positive feedback from learners concerning this new learning mode. However, to this date no empirical research is done yet to determine the real impact on learners and its effectiveness in supporting instructions.

Semester	No. of courses
Jan 2014	8
May 2014	14
Sep 2014	15

**Figure 7:** Number of courses offered under the Full Online Mode.

### Conclusion

With these new initiatives, OUM hopes to provide learners with better learning management tools that would enable them to control their own learning at their own pace. Hopefully the new features found in the revamped version of myVLE would enable them to be more self directed and successful in their learning. The better designed webpages and additional features available in the new myVLE also open up doors for OUM to add another learning mode to its existing blended mode. These supports make it possible for courses to be offered as full online mode. This not only provides learners with another choice to choose from but also would enable OUM to cut cost especially in tutors engagement and printing of modules. OUM hopes to study the impact of this new full online mode on learners and on assessment results soon. The study would also yield valuables feedback from learners to see how else myVLE can be further improved to maximise their learning experience.

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# Problems of digital libraries in the age of electronic publications

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## **Abstract**

*Along with the scientific improvements, that followed IT advances, a medium was born to expand and transmit information, which at first was deemed to remove books from the planet. However, the conducted research demonstrates the point that the more the world leans towards using computers and their application (electronic sources), the more it emphasizes the use of printed books and documents. At first, it appears as though the coming of new electronic media could jeopardize the publications in essence. Nevertheless, by using the right approach and adopting the right strategy, we can make this threat a prosperous chance for all since information technology that has paved the way for the removal of written and cultural misunderstandings, and it also has contributed to delivering information by using the most modern methods. Finally, it has helped to raze all the obstacles, which hindered the transfer of information through published sources to a large extent*

*Through this article, many features and specifications of electronic publications have been noted by looking at their different important aspects, including: defining electronic publishing, the advantages and disadvantages of electronic publishing, standards and patterns of electronic publishing, etc. Studies indicate that with respect to advances in science and scientific documents production, electronic media can also play an important role in promoting information, and in fact, the emergence of electronic documents amongst the issues caused by the field of promoting information is a breakthrough. The co-existence of electronic documents, along with published documents through promoting the information better and more accurately can cause the development of scientific communities. Not to mention that the qualities of electronic documents are always considered a major determiner of success for electronic documents, and which all are briefly and concisely talked about through this article.*

*Regardless of the difficulties in applying electronic documents, we can change the threat posed by electronic books publications into an opportunity through applying flawless patterns in publishing electronic books.*

**KEYWORDS:** *electronic publication, electronic books , electronic media , electronic book standards, digital libraries*

## **Introduction**

Following the changes which all happened after technology developments in the final decades of twentieth century, a new form of media was born which was regarded as a great competitor for books and printing business.

After the emergence of computers, especially personal computers, experts introduced Paperless Organizations. Weblogs and emails presented information to those in need of it. Experts claimed that they could listen to the information presented on the computer

screens using a text reading tool. However, these experts did not mention that technology development would cause weblogs, portals, and email accounts to be cheaper and more convenient. Instead, these developments brought about double use, both the printed text and electronic text. The digital source growth in many developed countries provided a better situation for its use and for accessing the information. Today, digital technology is serving the media, and based on its use and type, it can be the best chance for the humankind. In developing countries such as Iran, the digital source growth has not reached its optimum yet, and more researches need to be done in this field. Nowadays, bibliographies and digital books should function as a medium between the past, present, and future paths. They can achieve this goal by creating a technological, personal, and organizational communications. Digital books are based on electronic sources in such a way that all data are stored based on editing patterns of electronic publishing in digital library databanks; therefore, successful digital libraries are those which have adopted the best method for creating and storing digital sources.

### **What is electronic publishing?**

The process of producing and distributing data via electronic tools, emails and websites, is defined as electronic publishing. Documents which are published electronically may have also been printed on paper, or are just reserved for electronic environments.

Electronic publishing includes what is presented on the Net and soft copies of digital news reports, light discs, digital books, File Transfer Protocols (FTPs), Bulletin Board Systems (BBSs), and Discussion Groups, which are all available online.

Interestingly, even Facsimile Transmission is considered a tool in electronic publishing when it is used for many receivers. Hawkins et al, have defined digital publishing as “using digital and telecommunicating media to deliver information in digital patterns to users”. Harnad has used the term “Scholarly Skywriting” to describe digital publishing. His description refers to Bulletin Board System (BBS), appendices, newspapers, books, post and magazines, and readily available data services which are installable, such as software and video conferencing.

### **Digital publishing opportunities on the Web**

Despite the electronic world, digital publishing is not considered a threat for digital libraries and publication communities. In contrast, it is considered the best chance to access world information. The opportunities, which are provided by the electronic publishing are, indeed, a gateway to bypass traditional publishing. In societies, where printing institutions cannot help the society, digital publishing has prepared a good help for people. In other words, digital publishing along with printing institutions could make up for the defects of printing institutions, and has offered a better chance to use the sources. These opportunities, as the benefits of digital publishing, are as follows:

#### **1. Availability**

Delivery time: in digital publishing, due to being connected to the network, all documents are accessible all the time.

Delivery place: this means that we can access the data wherever possible.

## 2. Multi-media

The information format in digital publishing is presented via multimedia.

Multimedia is a format which allows authors to use different elements to empower their work using texts, sounds, images, videos and animations.

## 3. Coherence of information

One of the features of electronic publishing is coherence of data, which makes readers to be connected and directs them towards other types of information purposefully. Another key feature of this type of publishing is that it provides a link between the old and the new data.

4. No need for a physical storage for books. Digital publishing does not need a physical environment in which to store the books since all the data are recorded in the digital format.
5. No need to distribute and send books to other spots. Digital books do not need to be sent to other locations; however, the reader must be informed about them by using the proper way.
6. No possibility of recalling defective printed books. Since there is only one version of a published book online, a publication will never face any other forms of complaint from book-sellers and distributors.
7. Preventing hard copy sell-out. The biggest problem for readers is finding the printed books, which have sold out in the market, and the publisher has not decided to reprint the new editions of the books for unknown reasons. Publishing online books allow publishers not to face the problem of running out of printed versions, and this means that readers will always be able to purchase their desired books.

The electronic production system, which is brought about using Information Technology, acts as a suitable agent in society.

There are many schools of thought about electronic publishing, which are a great opportunity to provide us with valuable feedbacks.

Lee(2004) believes that there are different approaches to electronic publishing. Mentioning these viewpoints is crucial since they pave the way for us to make a report, which is as follows:

1. The author's approach. First, authors tend to edit their digital volumes in their word-processing environment. Publishing their writing means transferring the findings of their research to readers.
2. Publisher's approach. Publishers consider digital publishing a technological process, which transfers information and is carried out by the co-operation of authors, teachers, and service providers.

3. Users' approach. Users wish to access electronic publishing based on its time and the location. The finding tools should enable them to find their desired stuff rather than everything that is available.
4. Libraries' approach. Collecting and storing the printed material is the libraries' main task. This task has made them be involved in dealing with digital sources. They must confirm the authenticity and credibility of digital sources.
5. Computer centers' approach. Computer centers examine electronic publishing from the aspects of the physical accessibility of the servers, network bandwidth, recovery tools quality, hardware to store data for a long time, search engines, and storing ability.

### **Digital Libraries Threats and Restrictions**

Digital publication also deals with legal, economical, cultural, and technological restrictions on the Web environment, and sometimes these limitations are a barrier to detect the exact digital publication. Nonetheless, the existence of these obstacles as a threat is very natural since the new technology has still not found its place, and for many people, knowing the experts is completely unviable. Therefore, not until the problems of digital publications are resolved, we regard them as a threat for the industry some of which are as follows:

1. Internet and computer access. One of the issues that readers have to tackle is the unavailability of the Internet, especially computer systems. Many readers in developing countries do not have access to the above-mentioned facilities, and this has caused the digital book publishers to lose a considerable number of their potential readers. However, the daily reduction of computer system prices and the cost of connecting to the internet have given hope to the publishers of digital libraries.
2. Copyright and electronic books. The issues pertaining to digital book authors' copyright is even more intricate compared to printed books. The illegal use of digital books and the ease of adding and removing parts of them have made some problems for authors and publishers. The problem of copyright and abstract possession of digitally published material is not yet resolved even in pioneering countries. In addition, the issue of authors' copyright and the abstract possession of books on the Web environment can be counted as one the most important threats and obstacles in publishing this material digitally.
3. How to sell digital books. Some of the problems about selling digital books are purchasing methods used by the customers, providing "passwords" to view the book in order to keep its copyright, and using credit cards to pay for books.
4. The problems caused by reading books in the web environment. Reading a passage is more difficult on a computer screen compared to printed media. Human eyes will feel tired faster while reading on a screen compared to printed media, and the reader cannot have the same amount of concentration on screen compared to a printed book.

5. Digital books and reference problems: the unreliability of the Web environment has always created some problems for researchers to use digital information sources as their references.
6. Unavailability of a generic table of contents for digital books. There is not a single national or international table of contents for electronic books on the Web, and any available material belongs to a specific publication.
7. The spiritual aspects of publishing books in digital formats: Publishing a book in a digital format will eliminate some spiritual aspects for using and reading printed books.

Moreover, there are some important issues to consider in publishing digital books, including copyright ignorance, incapability of search engines – except the aforementioned issues, users' unskillfulness in searching information, displacing and removing databases and their unavailability, ignoring international digital book standards, such as language standards and data formation from publishers, and inaccessibility of the Internet and electronic documents all over the world, especially in underdeveloped countries.

### **Digital Libraries**

Using the computer technology and information in collecting, classifying, and distributing library documents has brought about a new concept called electronic or digital libraries. William Arms – as an expert in digital libraries – believes “a digital library is an organized system of data and dependent services all which are in a network and are available digitally.

Oppenheim and Smithson (1999) have defined a digital library as a place in which all services such as systemizing, maintaining and processing, revising, accessing sources and information etc. take place via information technology.

Chaong and Hor Arms(2000) have introduced digital libraries as libraries with no walls, which belong to the fourth generation of libraries, since service provision of these libraries is not limited to time, place, and number.

Digital library federation has announced in its notice that “digital libraries are systems which are used for choosing, classifying, providing a system to access the mental sources, interpretation, and continuous accumulation of numerical sources, in such a way that these sources are easily available for specific community or communities.

### **Creating a digital system**

The biggest plight for creating digital libraries is how to create their systems. To build a digital library and its sources, it is essential to edit above-mentioned digital sources. To put it mildly, electronic publishing can be an infrastructure, which could be used for digital libraries. Electronic publishing standards are used as a pattern to build such libraries in order to utilize these criteria in creating digital library systems and digitalizing sources. In general, there are three methods to create digital library, which are as follows:



1. Digitalizing: which means the process of converting all the printed copy, paper, and other forms of documents into a digital format. In Colon's view, digitalizing means converting all different types of material whether it is achieved via scanning, sampling, and even typing into an electronic format. The biggest issue in digitalizing is the high cost of it.
2. Gathering fundamental digital work: these pieces of work have been produced by publishers and researchers, some of which include electronic books, publishing, and databases.
3. Accessing sources out of the system: this ability is achieved through defining some links to websites, systems of other libraries, or other publishers' services.

### **Digital library qualities**

#### **A) Features of digital libraries**

Oppenheim and Smithson(1999) have considered the below features for digital libraries

1. Digital libraries are, in fact, the digital format of traditional libraries.
2. Digital libraries contain the digital borders out of the physical borders of libraries.
3. Digital libraries have a general view over all the data present in the library.
4. Similar to a traditional library, a digital library will offer its services to exclusive groups of users.
5. In addition to conventional librarians, a digital library needs network and computer specialists, too.
6. A digital library can have access to unique books such as manuscripts.
7. In such libraries, several users benefit from a particular database simultaneously.
8. In digital libraries, there is no face to face interaction between the librarian and the user.

#### **B) Benefits of digital libraries:**

Astilva (2004) has introduced the benefits of digital libraries as follows:

1. A digital library brings the information to the user
2. People use computer processing power to search for the information
3. The information can be shared
4. Updating the information is easier
5. The information is always available
6. The information can be presented using a different format
7. The cost of digital libraries is reducing.

#### **C) Restrictions of digital libraries**

Like other centers, digital libraries use modern electronic technology, which has its own limits due to its quality, and there is always a great amount of effort to remove these restrictions.

Regan(2003) explains the limits of digital libraries as follows:

1. The vagueness of the authors' copyright laws
2. The loss of emotional connection between the user and the library
3. Non-standard communication systems
4. The lack of coordination among computer experts, librarians and media experts
5. Superficial treatment by institute managers.
6. lack of attention to required standards.
7. The approximately high cost of such libraries.

### **Hardware and software needs of such libraries:**

1. Necessary hardware pieces: a digital library designer usually needs the following equipment: a service providing computer, a personal computer, digitalizing equipment, network connections, a printer, an energy source storage system, a DVD writer and the Internet.
2. Necessary software applications: the digital library software is considered the core technological piece in a digital library. This software application is used to handle various tasks of a digital library including production, classifying and upkeep, sketching, searching and interacting with the web search engines.

### **CONCLUSION**

The emergence of digital media can in and itself be a threat to printed media; however, by using the correct approach and adopting a suitable solution, this threat could turn into an opportunity, since information technology can resolve the issues of the printing tradition and provide the information using modern methods. Obviously, expanding the electronic publishing and creating more digital libraries can help reduce the costs for users. Therefore, we should not consider the emergence of new technology as a threat, but rather we should look at it as an opportunity. Electronic publishing should be counted as a supplementary solution and also an alternative along with printing tradition in order to remove the limitations in dissemination information, which is imposed by printed sources, and to make new ways in presenting and accessing different material. Information technology, especially networking and the Internet, has provided us a great opportunity in order to transform our belief system from storing the knowledge to sharing and distributing it. Electronic technology has impacted the libraries with its development and has been functioning as force towards making traditional libraries evolve into digital ones. Overall, our understanding of this phenomenon and discovering its new aspects should not make us seek negativity while there is positivity in this opportunity.

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# **Ubiquitous learning theory: A conceptual model of open English education**

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**Abstract:** The development of emerging technologies is enabling ubiquitous learning, which has triggered a variety of changes and reforms in the education field, including open education. Ubiquitous learning refers to a notion that any person is able to study anything via any devices at any time and at any place. This paper analyzes the definition and features of ubiquitous learning, and then elaborates on the construction of ubiquitous learning environment through operating system, network environment, learning resources and learning support in open universities. And the conceptual model of English teaching and learning in Changzhou Open University is put forward.

**Key words:** ubiquitous learning; open education; interactivity; conceptual model; blended learning

## 1. Introduction

In a traditional class, there is one teacher teaching to all the students in the same manner. Students' study is based on their textbooks and teachers' blackboard-writing. Now we live in the information era. Emerging technologies based on internet and modern communication technology are developing rapidly. Therefore, deep education reform is brought about during the process of education modernization. Mobile devices are widely used, such as cell phones, smart phones, PDA(Personal Digital Assistant), tablets and so on. They all possess similar capacity and function of the computers. Everyone can use technologies to access to broader learning resources, link to the environment and interact with the environment. Learners can learn in a more flexible way, at any time and at any place. All of these has made the ubiquitous learning possible.

US Department of Education has proposed in the National Education Technology Plan(NETP), 2010, that, through the internet and mobile devices, learners stay in touch with teachers, parents, experts, peers with common interest, mentors and coaches, online resources, personal learning networks and softwares. These emerging technologies provide the engaging learning environment and effective learning tools to help learners understand and memorize content so as to better achieve the learning objectives. For example, in some game-based courses, such as history classes, the students use softwares as game players to learn core subject content.

Technologies have provided more learning resources than the traditional model of class. And for each learner, such a learning mode is more personalized and more suitable for modern learners. This has also generated shock on the traditional teaching model.

## 2. the Definition And Characteristics of Ubiquitous Learning

### 2.1 Definition

The concept of ubiquitous learning originated from 'Ubiquitous Computing'. And now scholars generally believe that it was proposed by Mark Weiser in 1988, also known as Pervasive Computing (referred to as PVC). He argued that the most profound technologies are those that are invisible and used by people unconsciously to accomplish everyday tasks (Weiser, 1991). Now, the classroom is no longer the primary place to learn; school days are not the primary time to learn; and even teachers are no longer the primary source of information.

'Ubiquitous' means being seen or know everywhere. And ubiquitous learning refers to a way of learning in an environment formed by ubiquitous network. People can acquire any information with any available technological tools to conduct study at any place and at any time, namely 3A (Anywhere, Anytime, Anydevice) (Pang Chunhong, 2010). The concept of 5A has been brought up, which means anyone can acquire anything with any device to conduct study anytime anywhere (Zhang Xue, Li Ziyun, 2010).

Ubiquitous learning is learner-oriented. Learners focus on learning objectives and learning tasks rather than the learning tools or environment. While in the environment of ubiquitous learning, learners conduct learning in various ways and in various places according to their own needs. This means that all the actual places can be learning spaces. The acquisition, storage, editing, performance, teaching, creation of knowledge will take place in an optimum environment. This will improve people's creativity and problem-solving skills.

### 2.2 Characteristics

**Permanency:** Unless the learners deliberately cancel the records, their work and the learning processes are recorded;

**Accessibility:** Learners can request and access their documents, data and videos anywhere. This kind of information is based on learners' needs, thus the learning process is self-regulated.

**Immediacy:** Immediacy allows students getting any information immediately to solve a problem or record it, inspite of their location;

**Interactivity:** Learners are able to interact with experts, teachers and peers in sync or out of sync. Experts are more accessible and knowledge can be made use of in a more effective manner;

**Situating of Instructional Activities:** Learning can be embedded in daily life. Problems are presented in a natural and authentic form, which will draw learners' attention to the context.

Also Bomsdorf(2005) proposed additionally adaptability as the sixth characteristic of ubiquitous learning, referring to the function that learners get the right information at the right place and in the right way.

### 3. How to Construct a Ubiquitous Learning Environment in Open Education

In order to embrace a ubiquitous learning environment, at the first place, learners should own an operation system, then the network, learning resources and learning support. Nowadays, electronic products are very popular, for example, MP3s, cell phones, laptops, electronic readers(such as kindle, [www.amazon.cn](http://www.amazon.cn)), tablets and so on. Among these devices, the laptops and tablets are powerful in functions, but their use is limited by the price, weight and portability. According to a recent survey, smart phones occupy a larger market share because of their powerful function.

#### 3.1 the Operating System

In recent years, the number of smart phones is rocketing. According to a survey, the number of mobile devices users in the world will rise from 1.4 billion in 2011 to 3.2 billion in 2015, among which the 3G mobile phones will occupy 80% of all broadband devices. Furthermore, the functions of cell phones are evolving from calling, to text message, to entertainment and even to being computer like.

The main platform of smart phones are android, Windows Phone and IOS(Apple). Combined with various apps, smart phones are increasingly widely used. Learners can use their mobile devices to log on high-speed broad band.

Chris Dede proposed in the 6th European Conference on Technology Enhanced Learning, Palermo, Italy, 2011, that, the emerging technologies are enabling ubiquitous learning possible. The ubiquitous learning depends on the mobile devices. These mobile broadband devices now have ‘six senses’: (1) knowing where you are; (2) interacting with networks; (3) sensing local content and services; (4) discovering relevant things; (5) enhancing your surroundings with information and simulation; (6) learning your interests as well as how and with whom you like to learn. (Dede, 2011)

#### 3.2 the Network

The internet is indispensable to ubiquitous learning. The technologies of 3G, 4G, WIFI are being constantly improved and developed. This seamless trend enables learners to experience the continuity of learning. It provides support for ubiquitous learning.

#### 3.3 Learning resources

In ubiquitous learning, learners can choose what to learn according to their own interests. In this way, they can get rid of the bounds of accepting knowledge passively. Learners take the initiatives in knowledge construction in certain contexts with the aid of relevant resources or tools.

Shang Xianlian has pointed out that in order to satisfy learners’ personalized needs, the contents can be texts, pictures, audios, videos, three-dimensional videos, electronic books and so on. Learning activities can be formal learning, such as teaching, training at

school as well as informal learning without fixed place. Informal learning is self-initiated, self-regulated and self-responsible. Learners can enjoy more freedom and study according to their own will. In ubiquitous learning, learners share their experience with peers and interact with experts on certain difficult questions. During the process, learners can acquire help they want or provide assistance to others via various approaches (Shang Xianlian, 2011).

### 3.4 Learning Support

Lim proposes that open universities provide support to their learners in the following areas:

Administrative support – reminding learners of session dates and registration deadlines, particularly those who have been missing face-to-face sessions;

Academic purposes – sending SMSes that contain important course content, which is chunked in small sizes;

E-Counselling services;

Learner development support – helping learners to self-manage their studies better;

Learner assessment – sending interactive quizzes for learner self-assessment. (Lim, 2011)

In order to affect learners' transactional distance, open universities should provide higher-level learning support so as to motivate the students in an online course. For example, to remind the learners of the course arrangement, give timely feedback on performance, guide their personal organization and effective cognitive strategies and improve self-management skills (Tyler-Smith, 2006).

## 3.5 the Teaching Mode in Ubiquitous Learning Environment

### 3.5.1 the Role Transition of Teachers

In ubiquitous learning environment, teachers are no longer the sole source of knowledge. Teachers' roles should transform from the knowledge owner and transmitter to facilitator. Teachers should change their mindsets and realize that learners are the entity of study. Teachers should form the open and learner-centered concept and break through the roles of teacher and students in the traditional way.

### 3.5.2 the Role Transition of Learners

Learners should actively search for learning contents rather than accept the content passively. They should pursue the most suitable learning mode and construct their own learning environment. They also choose and filter the relative technologies and apply to their former knowledge construction so as to deal with the current difficulties and challenges.

### 3.5.3 Factors that should be Taken into Consideration in Ubiquitous Learning Environment

In the traditional learning mode, classrooms are isolated as the sole learning place. However, ubiquitous learning is a new learning mode and it combines the whole world with personal learning environment. And in open education, the teaching mode of ubiquitous learning should be based on the target learners and learning contents.

Teachers should design the courses in accordance with the inner regular pattern of study and focus on learning contents and target learners.

Most open learners are part-time learners. Professor Kinshuk proposed the importance of authentic learning in 2011. In open education, learning activities should be related to their working and living environments. Teachers should provide personalized study to motivate them. And learners' own learning objectives, habits and venues all affect the setting of teaching mode. Teachers ought to narrow the teaching objectives, refine the teaching content and selecting appropriate learning content as well as the way of presentation. Teachers could make multi-media courseware, such as electronic books, flashes, videos, etc, attach importance to learning support and examine learning outcomes. (Wei Xuefeng, Zhang Yonghe, Weizhihui, 2012)

Professor Kinshuk also put forward the 5R self-regulated mode, which stands for right learner, right location, right device, right time and right contents. This mode stresses that learners use certain tools to learn the provided contents in certain places at certain time. The above five factors exert influence on each other. If one factor becomes different, the outcome will change. (Wei Xuefeng, Zhang Yonghe, Weizhihui, 2012)

#### 4. the Conceptual Model of Open English in Changzhou Open University

##### 4.1 the Current Teaching Mode of Open English in Changzhou Open University

At present, we adopt the blended teaching model in Changzhou Open University. That is to say, in each open course for a semester, learners come to school for at least 12-20 hours vis-à-vis sessions; go online and use the Web 2.0 forum of provincial school website and interact with classmates and teachers online; study various online resources autonomously. Therefore, it is a combination of formal and informal learning.

##### 4.2 the Material Basis

According to our survey, the open learners in our university are mostly between 20 and 38 years old. And 92% of them own one or even more mobile devices, especially smart phones and tablets. They stay online for at least 3 to 5 hours. This has laid the material basis for the application of conceptual model of ubiquitous learning in our university.

In recent years, our university has introduced 'Lantop' and 'Weiketang'(Mini Lecture in English), which support android and IOS. Teachers and other administrative personnels can send text messages to learners' end devices, to inform important notices, encourage learners to catch up with the due progress and push course wares or exercises to learners' end devices. Then the learners can download these contents only at the cost of cell phone traffic. Through the app 'Weiketang', learners can perform exercises online in their spare time and get the mark and review. Thus the differentiated learning can be truly realized. At the same time, learners interact with teachers and peers. This new model of blended learning strengthens the interaction among learners and learners, learners and teachers, facilitate their self- management and encourage the learners.





### 4.3 the Design Concept to Provide Ubiquitous English Learning Environment

4.3.1 The learning contents should be flexible and controllable. Learners can choose contents and control the learning progress on their own.

4.3.2 Technical support of the learning process should be attached great importance to. For example, some smart phones are limited by the size of the screens. Suppose large blocks of texts were pushed as learning contents. Learners would find it inconvenient to read or type in order to interact with others. Softwares or apps based on voice interaction are expected to be developed.

4.3.3 Teachers should combine the situation with learners' working and living environment. Teachers should refine the learning object. Each session is designed to last only 30 seconds up to 10 minutes. It would be appropriate not to be longer than 5 minutes. So learners can make good use of the time while queuing or lining up for buses. Teachers abide by the principles of simplicity, high speed and efficiency.

### 4.4 Teaching Pedagogy

The open English learning mode in ubiquitous learning environment should be suitable for specific, self-regulated and concrete learning. Here the author proposes three teaching methods:

#### 4.4.1 Situated Learning

In situated learning, knowledge is constructed through learners' active construction. It lays stress on presenting the authentic and complex situation, rather than abstract environment. Learners could improve the knowledge learning through solving these complex problems actively.

#### 4.4.2 Problem-oriented Learning

Problem-oriented learning is active and self-regulated. It combines learning with tasks or problems. Learning takes place in specific contexts, so teachers can design authentic tasks in the context of work place, ask the students to analyze the problems and solve the problems by themselves. At the mean time, learners' interaction and cooperation with each other promote the development of their self-study ability and

social skills.

#### 4.4.3 Task-oriented Learning

Task-oriented learning offers task-related learning contents. Learners solve the problems in their work environment. It nurtures learners' ability of decision-making and responsibility. It can be combined with digital media.

For example, present perfect tense and attributive clause are in the textbook Open English I(2), which are also the important as well as difficult points in English learning. Teachers choose to push humorous animation, conversation related to learners' living environment and work place. Especially in the work environment, learners are encouraged to solve problems with their knowledge and experience. Also, learners can choose learning contents according their own learning objectives. In this way, they are more confident and motivated.

According our survey, this new mode combined with 'Lantop' and 'Weiketang' is welcomed by more than 87% of the learners.

## 5. Conclusion

It has been pointed out in the 'National Mid-long Term Education Reform and Development Plan (Year 2010-2020)' that we should run the open universities well. 'The National Open University Construction Programs' also puts forward that we should adapt to the development tendency of our economic society, modern information technology and distance education and reform traditional training model, explore and establish new personnel training model which is matched to personnel training objectives the National Open University. Ubiquitous learning is facilitating the construction of open education. Changzhou Open University will continue to explore the conceptual model which is suitable to the open English courses in our university.

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# Combining virtual simulation experiments with remote control experiments in distance education

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**Abstracts:** Based on the analysis of current situation of distance learning in experiment teaching and the introduction to the remote control experiment, this paper proposed a teaching design combining virtual simulation experiment and remote control experiment for teaching electronic experiment courses. In the new model, virtual simulation experiment and remote control experiment are carried out in phases, which helps both to keep the effects of traditional experiment teaching and confirm to the characteristics of online teaching. Practice proves that the experiment teaching combining virtual simulation and remote control experiment is a quite ideal model for experiment teaching, which is worth popularization in other courses.

**Key words:** virtual simulation experiments; remote control experiments; distance education

## Introduction

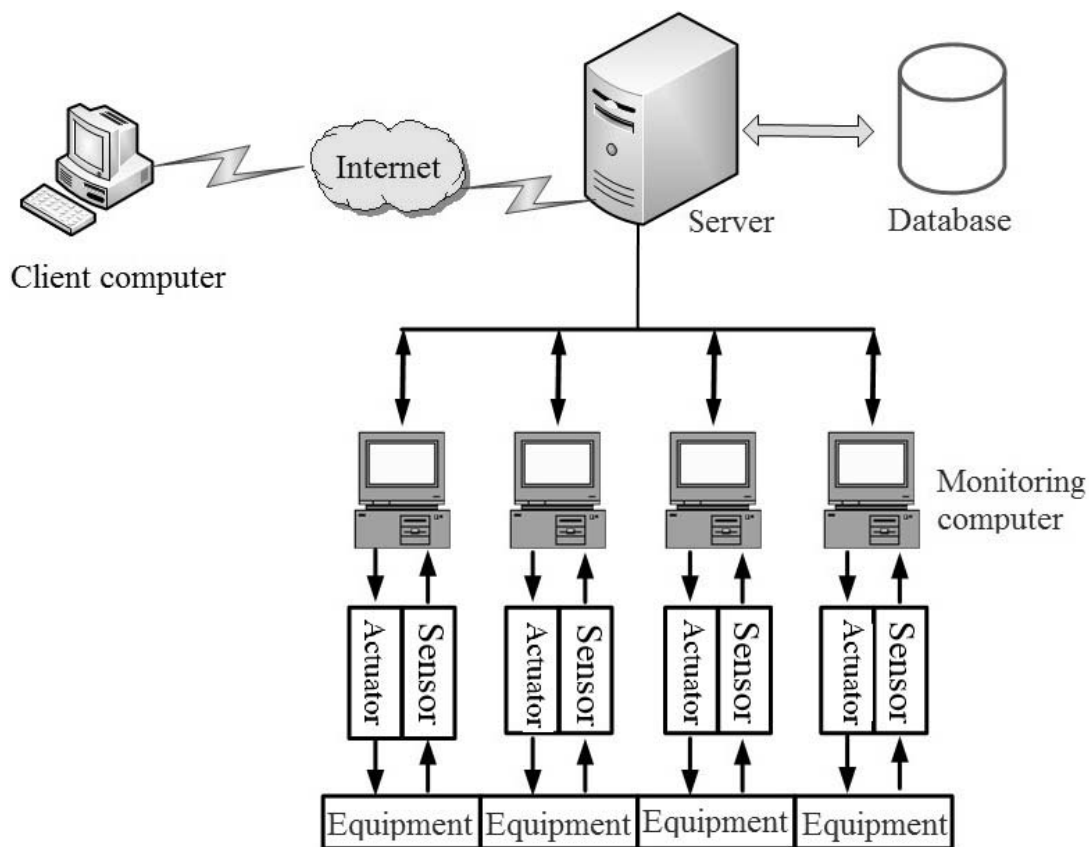
Currently, the traditional experiment methods are adopted for the experiment courses in most universities, which strengthen students' understanding of basic theories, cultivate their perceptual knowledge and practical ability, and help them to be team players. Yuchen QI(2009) points out that the traditional experiment does not fit the development of distance education due to the fact that it needs to be done simultaneously in certain experimental labs and the experimental resources can't be shared[1].

In order to solve the above mentioned problem, virtual simulation experiments are adopted widely. According to Bin Sun(2008) and Xin Wang (2005), this method is combined with the use of Internet, which helps to realize remote simulation experiment<sup>[2,3]</sup>. Therefore the limitation of time, space and resources sharing won't be problems. The virtual experiments are characterized by openness, resources sharing, interaction, autonomy, expansibility and safety. But in the reality, some experiments are to testify theories, while others are to testify the features of devices. So, compared with traditional experiments, simulation experiments are carried out virtually, which ignores many interference elements. As a result, virtual experiment can't overcome the lack of intuition and the error analysis of measured data.

The remote control experiment system is a teaching assistance system many universities need. It is more real and virtual than traditional experiments and it overcomes the disadvantages like taking too much space, malfunction of devices and high cost of maintenance. According to Shuihua Lan(2006) and Ling Jing (2007) This kind of systems have been applied in many universities and colleges home and abroad with virtual device technology and remote control technology and it is the compliment and the expansion of the traditional experiments<sup>[4,5]</sup>. However, remote control experiments are lack of flexibility in hardware circuit and theory teaching, therefore, combining virtual simulation experiments and remote control experiments is the trend in distance education.

## Organization of the Text

**Theories and application of remote control** .Remote control refers to the technology that server computers control client computers in distance through Internet, as illustrated in Fig1. The remote control software includes Client software and server software and it builds data exchange pass between two computers: the server computer sends out instructions and shows the results from client computers. Some remote control software adopts the technology of Web, so the sever computers can control client computers through running IE explorer. Different kinds of remote control can be realized via remote control software and all the resources from client computers and all the other devices connected to them can be used. In industrial application, the client computers can be linked with devices on the spot by sensors and actuators. Therefore, clients can control devices on the spot by sever computers.

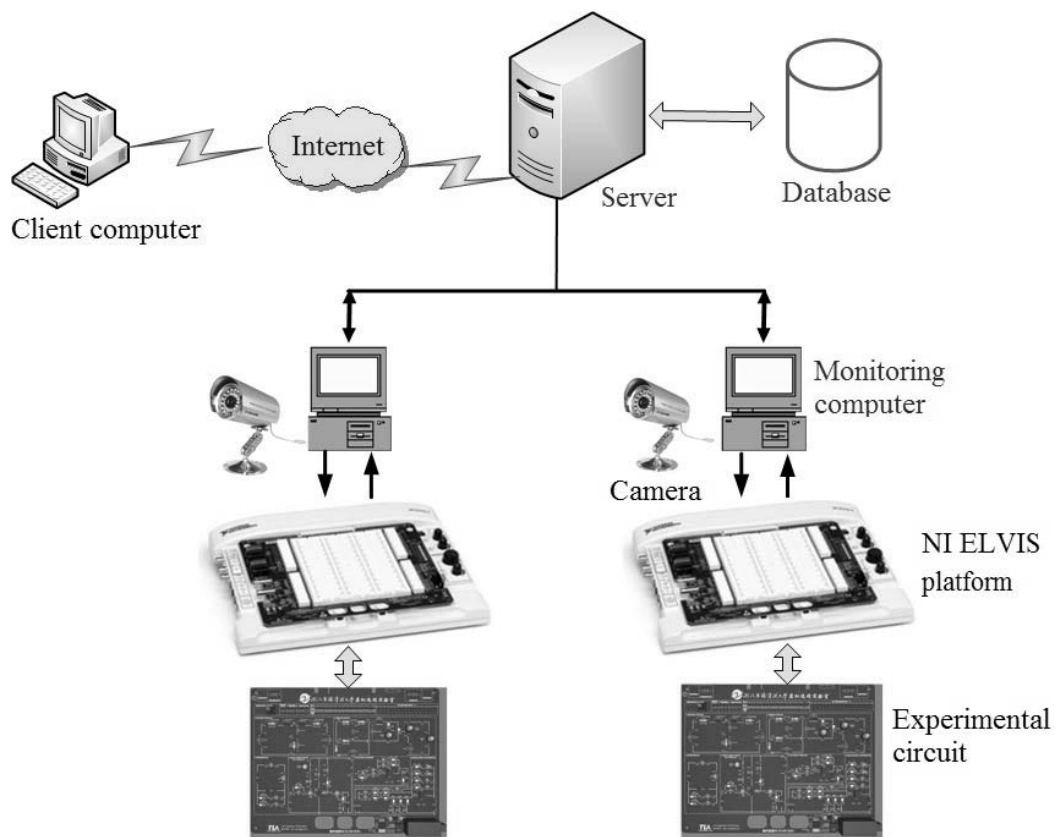


**Fig1. Theories of remote control experiment**

Remote control technology is applied wildly. Take teaching as an example, Dalian University of Technology (DLUT) introduced microelctronic device remote experiment lab and dynamic signal analysis remote experiment lab from MIT and students from DLUT can control devices in MIT labs on line and carry out real experiments. In scientific research field, Northeastern University, funded by 985 Project and Industrial High-tech Innovative Platform, established remote control theory lab which provides a physical experiment system for remote control theory researchers who can not only fulfill the simulation study on complex object control algorithm , but also testify the study in physics system in short time. In the field of astronomy observation, the remote observation system, established by National Astronomical Observatories, Chinese

Academy of Sciences(NAOC), makes the astronomical telescopes accessible through Internet and researchers can control astronomical telescopes' angle and focus through Web explorer and obtain observation data. In the field of deep sea exploration, observation system is established by burying sensors on the bottom of the sea, so that researchers can observe and collect data from the deep sea.

**Remote control experiment system.** Based on the above remote control theories and the need of electronic experiment teaching in Zhejiang Radio and Television University, a remote control experiment system is established. This system is based on the ELVIS Platform from National Instrument. ELVIS Platform integrates 12 common virtual devices such as, oscilloscope, DMM, function generator, Adjustable digital power supply. LabVIEW is also supported in this system. The application programs developed in LabVIEW can be released on line and students can do experiments through Internet. The remote control experiment theory is illustrated in Fig2 .



**Fig2. The principle diagram of remote control physical experiment system**

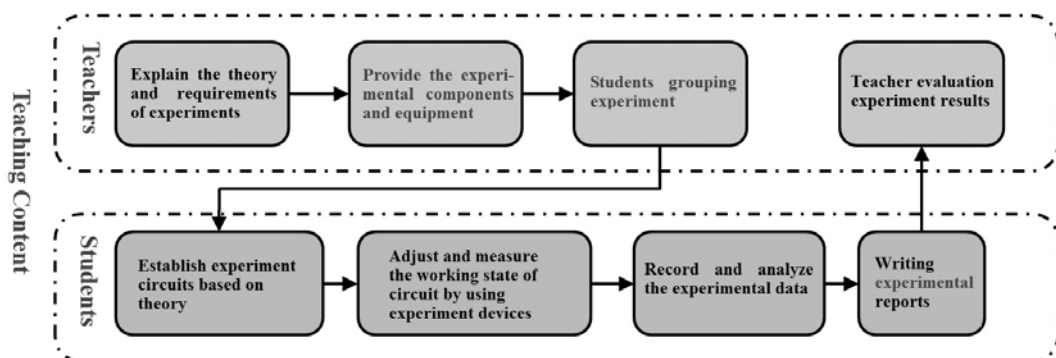
Remote control circuit experiment can be realized by developing programs and circuits concerning the course experiments. The system includes 4 monitor computers on the spot and every monitor computer is connected to a camera and ELVIS Platform. By connecting circuit module to ELVIS Platform, students can control experiment and obtain experiment data and results, and they can observe the change of experiment module in remote windows after they log in remotely.

Currently, the remote control experiment system includes 4 modules of "circuit analysis", "analog circuits.", "digital circuit", and "analog system design", which can

cover most of the experiments of Electrical and electronic curriculums. This system can be used as a complimentary demonstration system of theory teaching. Teachers can demonstrate hardware experiments for students and strengthen students' understanding without taking experiment device to classes. Meanwhile, the system can be used as a 24-hour open lab and students can log in anytime,anywhere to finish preview of experiments.

**Teaching design combing virtual simulation experiment and remote control experiment in distance education.** In order to combine virtual experiments and remote control experiments and achieve the teaching goal of traditional experiments, we need to compare and analyze the teaching goals of traditional experiments and virtual experiments.

**Teaching goals and effects of traditional experiments.** The content of traditional experiments are illustrated in Fig3. Firstly, teachers explain the theory and requirements of experiments; secondly, students are divided to different groups according to the experiment resources and the number of students. Then students establish experiment circuits based on circuit theory ,adjust and measure the working state of circuit by using experiment devices and take down the experiment data. After the analysis of experiment data, experiment reports are done. Finally, teachers grade the experiment reports. In such process, students can understand electronic circuit, comprehend abstract theories, know how to use experiment devices, and acquire the skills of data analysis. However, because of the limitation of time, space and resources, the traditional experiment doesn't fit distance learning.



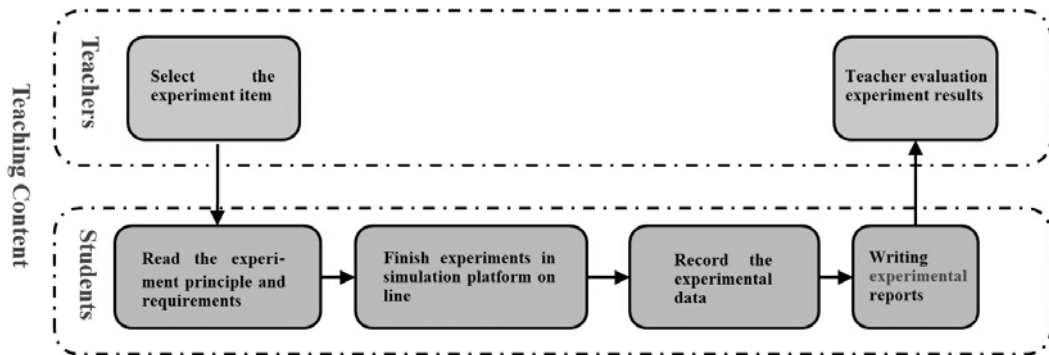
**Fig3. Teaching process of traditional experiments**

**Teaching goals and effects of virtual simulation experiments.** Compared with traditional experiments, the process of virtual experiments is relative simple: students sit in front of computers, log in simulation platform on line and finish experiments. This solves the limitation problems of time, space and resources. The teaching contents of virtual experiments are listed in Fig 4.

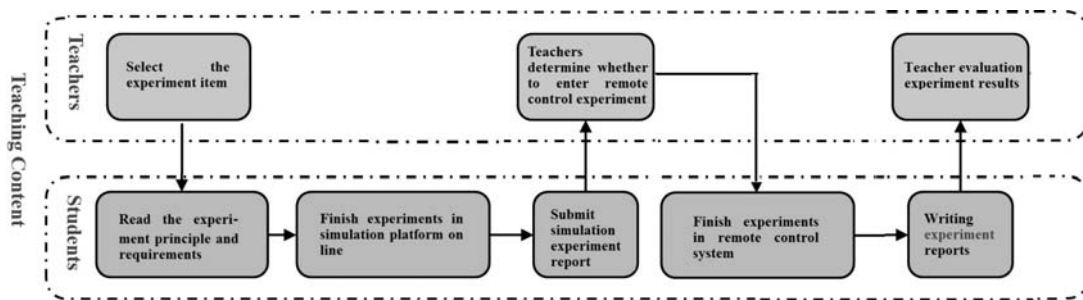
Usually after teachers choose certain experiment items, students log in virtual experiment system. Firstly, they read the theory and requirements of the experiment; secondly, establish circuit on the virtual experiment system by moving mouse; thirdly, modify the circuit parameters and do simulation and take down simulation data or curve. Finally, write and submit experiment reports and teachers grade the reports on line.

**Teaching goals and effects of the experiments combing virtual simulation and remote control.** Based on the above analysis, the teaching design model combing virtual

simulation and remote control experiments is proposed. In teaching, making use of virtual experiment platform and remote control experiment system in phrases can keep the features of online distance operation. The Process of experiment teaching combing



**Fig4. Teaching process of virtual simulation experiments**



**Fig5. Teaching process combing virtual simulation and remote control experiments**

virtual simulation and remote control experiments is illustrated in Fig 5.

First, teachers choose experiment item and students log in experiment system platform. Second, students read the experiment theory and requirements, establish experiment circuit in the virtual simulation platform, finish circuit simulation and submit simulation report. Third, teachers grade the reports and require students do the simulation again if they fail the requirements. For those who meet the requirements, they can move on the next remote control system: they adjust circuit parameters in the physics experiment system, observe experiment phenomena, take down experiment data , write and submit reports . Teachers grade reports online at last.

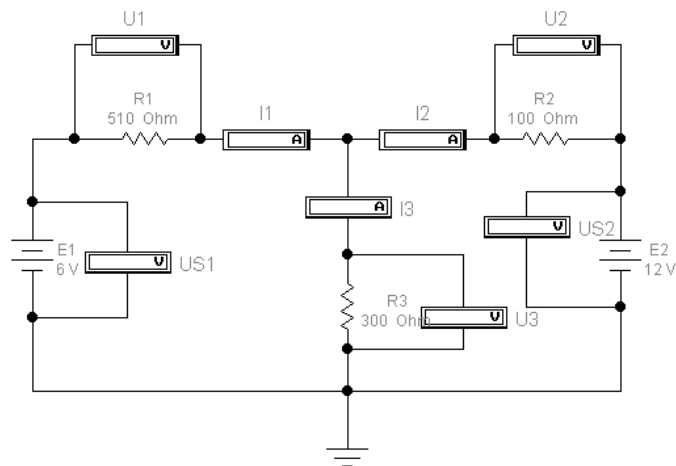
Combining virtual simulation experiments and remote control experiments, the following teaching goal can be achieved:

First, through simulation experiment, students' theory understanding can be strengthened. Second, through experiment course, students can understand theory and method of the widely used data collecting system and virtual devices in industry. Third, through camera, students can observe experiment phenomena and electronic circuit directly. Forth, because of the authenticity of experiment circuit and the process of data testing, it is essential for the experiment data analysis and error analysis. Compared with the teaching goals and effects of traditional experiments, all the other teaching goals are



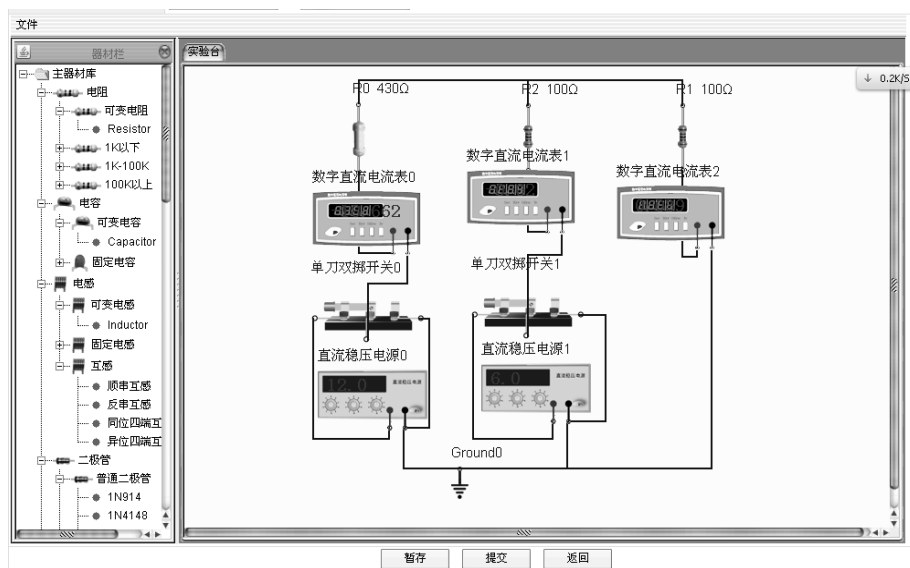
achieved except practical ability and the use of traditional devices. This is a relatively ideal experiment teaching model.

**Teaching case.** Take the Kirchhoff's laws experiment in Electrical and Electronic curriculums as an example, the traditional experiment requires students establish circuits according to Fig 6, modify the output voltage of dc power, take down the data on all the voltmeters and ammeters, according to the experimental data to test whether the sum of three branch current is zero, because of reading error, instrument measurement error, signal noise and the effect of resistance, the experimental results will have a certain deviation with the theoretical prediction. Therefore, traditional experiment requires students analyze the reasons for errors and list, then judge the validity of Kirchhoff's law.



**Fig6. Schematics of Kirchhoff's law experiment**

In the mix of the experiment teaching process, students are required to establish simulation circuit on the simulation experiment platform based on the above mentioned theory illustrated in Fig 7, modify the output voltage of dc power, take down the data on all the voltmeters and ammeters, test whether the sum of three branch current is always zero. Because simulation platform is according to ohm's law and Kirchhoff's law to carry on the numerical solution, the simulation output must be consistent with theoretical predictions, the deviation is only due to the computer itself to intercept errors.



**Fig7. Simulation diagram of mixed experiment**

In order to help students understand the real situation, they are required to log in the remote control experiment platform after they establish circuit and measure data. The experiment circuit principle in remote control experiment platform is same as traditional experiment circuit, Virtual instrument provided by ELVIS is replaced the traditional instruments. Real circuit experiment phenomenon through remote video can be observed, as shown in figure 8.



**Fig8. Real circuit experiment phenomenon through remote video**

Students change the dc voltage through the network virtual instrument , measur the voltage and current data of each node, compare the real measurement data and simulation data, and analyze the causes of error and the reasonable range of error according to the principle of measurement of the virtual instrument and the precision of resistance level known factors , then determine whether the results consistent with the theory of kirchhoff's law, finally submit report.

## Summary

From the above case, conclusion can be drawn that experiment teaching combining virtual simulation and remote control experiment can achieve the teaching goal of traditional experiments, so that it fits the development of distance education and is recommended to be popularized in other courses.

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# **Reflections on blended learning: A case study at the Open University of Hong Kong**

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## **Abstract**

Teaching presentation skills is by no means an easy task. To teach presentation skills effectively, a teacher must help the students learn how to (1) design and organize the presentation content effectively; (2) strengthen their verbal and nonverbal communication skills, and (3) master the use of visual aids. Often, the traditional face-to-face classroom setting falls short when the lecturer has to teach more than 100 students how to observe small details regarding body language and vocal skills. Blended learning mode, a hybrid face-to-face and online learning, in this case, may be a better option than the pure face-to-face learning mode (Fang et al., 2012).

The purpose of this paper is to demonstrate how blended learning can be implemented to teach university students' presentation skills. In the spring term of 2013, *ENGL A122F: Presentation Skills*, a five-credit course for full-time undergraduate students, was first delivered via the blended learning approach at the Open University of Hong Kong. Attempting to combine the best features of the online and face-to-face modes of teaching, the blended delivery course incorporated video and interactive web-based components into the course outline.

In this paper, I will share my experience of how presentation skills can be taught through video lectures and assessed through the online learning environment (OLE), alongside traditional teacher-led lectures and tutorials. Also, I will discuss how the blended learning approach, compared to the traditional face-to-face teaching mode, can not only facilitate propositional knowing, but also help learners achieve experiential knowing, and presentational knowing (Heron & Reason, 2006). Last but not least, the paper will reflect on students' feedback, as well as the challenges when implementing the blended learning mode.

**Keywords:** Blended learning, presentation skills, higher education, experiential knowing, presentational knowing

## 1. Introduction

*ENGL A122F Presentation Skills*, a five-credit, one-semester course for full-time face-to-face students, aims to provide students with a practical approach to mastering face-to-face presentation effectively. Within the duration of 13 weeks, the lecturer has to teach the following areas to over 100 students:

*Figure 1: Topics to be covered in ENGLA A122F*

Topics	
1	Why we need presentation skills?
2	What is communication?
3	Barriers to communication
4	Analyzing the situation
5	Building your presentation
6	Structuring your presentation
7	Communicating effectively
8	Managing body language
9	Managing your voice
10	Visual aids
11	Devices and Technologies for displaying visual aids
12	Setting the stage

One headache faced by the lecturer was that it was difficult to teach topics such as ‘managing body language’ and ‘managing your voice’ in a lecture room with more than 100 students. Should the lecturer demonstrate certain body language in class in order to explain what effective nonverbal communication is? How about facial expressions? How could the lecturer make sure that students sitting in the last row of the lecture room see clearly the facial expression demonstrated on his/her face? Also, because of the large class size and inflexible seating arrangement in the lecture theatre, the face-to-face learning mode does not support quality reflective and collaborative learning.

To encourage active learning, the teacher should find ways to help the students see the point of learning, realize how the course is related to them as individuals, and learn how to develop and improve their presentation skills. Learning can become effective if the teacher can enhance the four kinds of knowing (Heron & Reason, 2006):

1. *Propositional Knowing*: it is the knowing of facts through ideas and theories. This kind of knowing is also the commonest kind that occurs in traditional learning processes.
2. *Experiential knowing*: when the transformation of experience takes place, experiential knowing is achieved. Deeper learning and understanding can be enhanced if learners are provided opportunities to connect with one another, share and discuss learning experience in an organized way.
3. *Presentational Knowing*: grounded on experiential knowing, presentational knowing encompasses intuition and reflection, imagination and conceptual thinking (Heron, 1992, p. 158). It reflects the ability to verbalize explicit knowledge and represent tacit knowledge. The form of expression may not be limited to linguistic articulation though. Other “expressive forms of aesthetics, such as drama, movement, story and dance” can also be included (Murphy, 2012, p. 10).
4. *Practical Knowing*: simply put, practical knowing means knowing how to exercise a skill and do something. It shows the learners’ ability to apply what they have learnt to accomplish something. Through practical knowing, one puts something into action and finds out how to do things better.

Among the four kinds of knowing, propositional knowing can mostly occur in traditional face-to-face lectures. For instance, in *ENGLA122F*, communication theories and can be taught in face-to-face lectures. Practical knowing can also occur in face-to-face tutorial sessions, where students’ individual presentations and group presentations are assessed by the teacher. Experiential knowing and presentational knowing, however, extend beyond the teacher-led lectures and tutorials. With a view to creating a better learning environment that enhances experiential knowing and presentational knowing, in 2013, the blended learning mode was introduced to *ENGLA122F*.

## **2. The *ENGLA101F* Blended Learning Experience**

Having introduced the blended learning approach to the university presentation course since 2013, now 70% of the course is delivered via face-to-face lectures and tutorials; 30% of the course is delivered through online video lectures, recorded

presentations with commentaries, brief study questions, and the discussion board. Self-directed learning is encouraged among students, who should take the initiative to learn on their own by watching recorded lessons and presentations, listening to commentaries on speeches, and making class feedback through the discussion board in the Online Learning Environment (OLE).

Figure 2: ENGLA A122F in the blended learning mode

Week	Topics	Face-to-face study hours		E-Learning hours	
		Lecture	Tutorial	Multimedia (e.g. online discussion & activities, simulation, etc.)	Video/audio
1	Why we need presentation skills?		1	2	1
2	What is communication?		1	3	1
3	Barriers to communication	2	2		
4	Analyzing the situation	2	2		
5	Building your presentation	2	2		
6	Structuring your presentation			2	1
7	Communicating effectively	2	2		
8	Managing body language	2		2	1
9	Managing your voice		2	2	1
10	Visual aids	2	2		
11	Devices and Technologies for displaying visual aids		2		
12	Setting the stage	2	2		
13	Revision	2	2		
	<b>Total hours</b>	<b>36</b>		<b>16</b>	
	<b>Total percentage</b>	<b>70 %</b>		<b>30 %</b>	

Figure 3: An online video lecture on non-verbal communication



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As shown in Figures 2 and 3, face-to-face lectures regarding body language, facial expressions and vocal skills are now replaced by online videos with close-up demonstrations and explanation. Students can do their revision by replaying the video lectures anytime they need it.

Alongside online video lectures, recorded presentations and the discussion board, for some particular topic areas such as 'What is communication?' and 'Structuring your presentation', there are interactive online writing tasks where students share their answer with *ENGL A122F* learning community. By using this online platform called Wiki, the tutor can provide instant feedback to each student's work. Also, classmates in the same tutorial group can read, write comments, and make feedback on one another's written assignment once it is uploaded onto the Wiki.



Figure 4: Student-teacher interaction in the Wiki system

OLE Wiki	
<p>Mandela made this speech from the dock of the defendant at the Rivonia Trial His speech was about the ideal of a democratic and free society</p> <ol style="list-style-type: none"> <li>1. Speed of delivery           <ul style="list-style-type: none"> <li>- Mandela used a rhythmic tune during the first part of his speech when he talked about the personal desire of the African people e.g. living with their own family. This showed the desires were urgent and strong.</li> <li>- He softened and slowed down in the later part of his speech when he talked about the desires of the whole Africa e.g. 'we want a just share in the whole of South Africa'. This soft and slow tune gave the audience a feeling that this desire, though seemed big, was indeed a humble wish.</li> </ul> </li> <li>2. Pausing           <ul style="list-style-type: none"> <li>- He paused after the subject of every sentence. This clearly showed and emphasized who was making the following desire. A feeling of urgency and strength of the desire was created.</li> <li>- When it came to long sentences which contained phrases and clauses, Mandela broke them into parts so that it would be easier for the audience to follow.</li> <li>- When came to the later part of his speech, especially when he said "our struggle.....is a truly national one" and "it is a struggle.....of the African people", he gave a long pause in the middle of the sentence. This made it very touching to the audience.</li> </ul> </li> <li>3. Emphasis           <ul style="list-style-type: none"> <li>- Mandela put stress on words like 'want', 'want to be allowed' and 'not' to show how strong the word meant to be. It made his speech more powerful and persuasive.</li> </ul> </li> <li>4. Uniqueness           <ul style="list-style-type: none"> <li>- He used a lot of I, we and our in the speech. This provided a sense of urgency that the audience should make his call their own.</li> <li>- His frequent use of active verbs also created a sense of urgency.</li> <li>- His speech contained mostly simple words and sentences. Mandela used lots of SVO sentence structure throughout the whole speech which made his messages very clearly delivered.</li> <li>- He sometimes used absolute words e.g. never to strengthen his meaning.</li> <li>- He used 12 wants in the first part of the speech. They did not only serve as active verb, they were also emotional words that moved the audience.</li> <li>- When Mandela talked about a desire, he always used a comparative pattern i.e. we want.....but not..... This comparison reflected how difficult and unfair their current situation was and that changes should not be delayed any more.</li> <li>- Acronym "ANC" was used. It was alright to use in his speech because all the audience would know it actually meant African National Congress in the trial.</li> </ul> </li> </ol>	<p>TSANG Chor Yan (s1118918)</p>
<p>Well done, Claudia! And about the use of pronouns, yes, it is very true that the use of 'we', 'our' often creates solidarity. It implies that the speaker and the audience are in the same boat.</p>	<p>Dr. TSO Wing Bo (atso)</p>

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Meaningful interaction and effective peer collaboration that cannot be achieved in the classroom setting are now supported by the online Wiki-platform. Students are able to acquire the knowledge and skills needed for presentation in a more effective and efficient manner.

### 3. Data Analysis and Evaluation for Blended Learning

After launching the blended learning mode of *ENGL A122F*, in April 2013, I conducted a student survey to check my students' view towards blended learning of the presentation course. From the 94 questionnaires I gathered in my class, it is found that up to 64% of the students found the online class content, online peer discussion and

instant tutor feedback on the Wiki-platform helpful in strengthening their understanding of the curriculum content.

*Figure 4: Survey results that reflects on propositional knowing enhancement*

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1. The online content enriched my understanding of key concepts.	19.1% (18)	45.7% (43)	26.6% (25)	7.5% (13)	1.1% (1)
2. The peer-discussion and instant feedback on wiki improved my understanding of the class content.	10.6% (10)	55.3% (52)	27.7% (26)	6.4% (6)	0% (0)

The student feedback recorded in the end-of-course evaluation report also reflected that students found the online video lectures useful and interesting. Propositional knowing was enhanced.

*Figure 5: Excerpted student feedback on the ENGLA122F video lectures*

Feedback 1	“It’s interesting to watch videos. This helps me to know about the content of the course.”
Feedback 2	“Some of the OLE video are quite interesting and helps me to have a better understanding of presentation provided with key teaching points.”
Feedback 3	“Useful video showing what a good presentation should be.”
Feedback 4	“The course includes a lot of videos that demonstrate different points.”

Students found the online exercises in Wiki and peer discussion in the OLE useful to their learning too. From the post-course survey, it is revealed that more than half of the *ENGLA122F* classmates agreed and strongly agreed that with the introduction of the blended learning approach, they became more connected with the classmates in the course, which in turn enhanced their learning experience. Experiential knowing was enhanced.

Figure 6: Survey results that reflects on experiential knowing enhancement

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
3. I feel more connected with my fellow classmates in this course. The online component encouraged peer learning and reflective thinking.	13.8% (13)	37.2% (35)	37.2% (35)	5.4% (5)	6.4% (6)
4. With Wiki, the quality of interaction with my classmates and teachers was better, which enhanced my learning experience.	12.8% (12)	45.3% (42)	30.1% (29)	5.4% (5)	6.4% (6)

While many agreed that the online environment, in particular the Wiki learning activities and interaction allowed more room for authentic learning experience, some students were, as can be seen in Figure 7, not entirely comfortable with sharing their homework and tutor’s remarks with the public. Others also suggested that five Wiki activities were too many:

Figure 7: Excerpted student feedback on the ENGL A122F Wiki activities

Feedback 1	“It’s not fair to allow students to view others’ homework.”
Feedback 2	“The assignments that students do in the Wiki should not be shared among students.”
Feedback 3	“The comments in Wiki are rather discouraging.”
Feedback 4	“Tutors instead of students should give feedback.”
Feedback 5	“Less online activities.”

Fortunately, more than 50% of the students in the survey agreed and strongly agreed that the online setting and Wiki activities did encourage them to ask questions, present ideas, and articulate their interpretation of certain key concepts in the presentation course. As Farmer (2005) remarks, “technology increases opportunities and means to express facts and perspectives, and facilitates metacognitive processes; participants can transcend reactive activity and become more engaged and productive” (p. 12). To a certain extent, the blended learning approach enhanced students’ presentational knowing.

Figure 8: Survey results that reflects on presentational knowing enhancement

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
5. With the online learning platform, I became more likely to ask questions.	8.5% (8)	44.7% (42)	19.1% (18)	22.3% (21)	5.4% (5)
6. Wiki helped me present my ideas and understanding of the key topics.	16% (15)	34% (32)	35.1% (33)	10.6% (10)	4.3% (4)

#### 4. Conclusion

Results from the post-course student survey and the evaluation report suggest that in general, students of the *ENGL A122F* course developed positive attitudes towards blended learning. With the introduction of the blended learning mode and the incorporation of peer discussion in the OLE Wiki, interpersonal connection between students, lecturers and tutors were promoted in a short duration of 13 weeks. The online peer interaction, sharing and discussion brought about by the blended learning approach enriched students' learning; propositional knowing, experiential knowing, as well as presentational knowing were enhanced. Successful as it is, sharing their assignment online and allowing classmates to comment freely on their work are of concern to some students. As Rhea et al. (2007) point out, peer discussion does not always bring positive learning experience. In their study, it is found that about 20% of the comments made by graduate students were destructive criticism with no suggestions for improvement. With this regard, the course coordinator will need to strike a balance between openness and confidentiality in the OLE.

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# **The contribution of open and distance learning to the development of society in Vietnam: A case study from Hanoi Open University**

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## **Abstract:**

This paper provides insights into the status and contributions of Open and Distance Learning (ODL) in Vietnam, in terms of labour force development and savings in knowledge and skills acquisition.

Data show that most of ODL undergraduates from Hanoi Open University (HOU) are in 'hot' fields such as Economics and Laws. This reflects the demands of the emerging market of Vietnam in line with its industrialization, modernization and economic integration processes. Demands on different knowledge and skills change over the course of socio-economic development of Vietnam are also reflected in the changes in the number of ODL undergraduates over the years. Data also show that the economic value of ODL is much higher than that of other modes of learning.

**Key words:** Open and Distance Learning, labour force development, economic value, knowledge and skills acquisition.

Labor force development: The quantitative and qualitative growth of the work force.

Economic value: The contributions in financial terms.

Knowledge and skills acquisition: The gaining of knowledge and skills for personal growth.

## **Introduction**

ODL has been developing very fast in Vietnam. Up to now, there are around 20 officially recognized ODL providers at higher education level. ODL can be said to have a high status in the educational system of Vietnam, and has made great contributions to the socio-economic development of the country.

ODL was officially recognized in Vietnam in 1993 with the birth of Hanoi Open University and the Open University of Hochiminh City. On the one hand, ODL can get its current status because of its advantages and its contributions to the society; on the other hand, the recognition of its status has helped to boost up its development.

This paper will help to provide insights into the status and contributions of ODL in Vietnam, in terms of labour force development and savings in knowledge and skills acquisition.

## **Benefits of ODL**

ODL can expand access to education and training for both general populace and businesses since its flexible scheduling structure lessens the effects of the many time-constraints imposed by personal responsibilities and commitments<sup>[5]</sup>. Devolving some activities off-site alleviates institutional capacity constraints arising from the traditional demand on institutional buildings and infrastructure<sup>[5]</sup>. Furthermore, there is the potential for increased access to more experts in the field and to other students from diverse geographical, social, cultural, economic, and experiential backgrounds<sup>[4]</sup>. As the population at large becomes more involved in lifelong learning beyond the normal schooling age, institutions can benefit financially, and adult learning business courses may be particularly lucrative<sup>[4]</sup>.

ODL can also provide a broader method of communication within the realm of education. With the many tools and programs that technological advancements have to offer, communication appears to increase in ODL amongst students and their professors, as well as students and their classmates. The ODL increase in communication, particularly communication amongst students and their classmates, is an improvement that has been made to provide ODL students with as many of the opportunities as possible as they would receive in in-person education. The improvement being made in ODL is growing in tandem with the constant technological advancements.

The high cost of education affects students in higher education, to which ODL may be an alternative in order to provide some relief. ODL has been a more cost-effective form of learning, and can sometimes save students a significant amount of money as opposed to traditional education. ODL may be able to help to save students a considerable amount financially by removing the cost of transportation<sup>[1]</sup>. In addition, ODL may be able to save students from the economic burden of high-priced course textbooks. Many textbooks are now available as electronic textbooks, known as e-textbooks, which can offer digital textbooks for a reduced price in comparison to traditional textbooks. Also, the increasing improvements in technology have resulted in many school libraries having a partnership with digital publishers that offer course materials for free, which can help students significantly with educational costs<sup>[1]</sup>.

Within the class, students are able to learn in ways that traditional classrooms would not be able to provide. It is able to promote good learning experiences and therefore, allow students to obtain higher satisfaction with their online learning<sup>[3]</sup>. For example, students can review their lessons more than once according to their need. Students can then manipulate the coursework to fit their learning by focusing more on their weaker topics while breezing through concepts that they already have or can easily grasp<sup>[3]</sup>.

Due to these advantages, ODL has been developing very fast in Vietnam. Up to now, there are around 20 officially recognized distance education providers at higher education level. ODL can be said to have a high status in the educational system of

Vietnam, and has made great contributions to the socio-economic development of the country.

### **Status and contributions of ODL to labour force development in Vietnam**

ODL was officially recognized in Vietnam in 1993 with the birth of Hanoi Open University and the Open University of Hochiminh City. On the one hand, ODL can get its current status because of its advantages and its contributions to the society; on the other hand, the recognition of its status has helped to boost up its development.

At the national level, there are a full set of documents confirming the role and status of ODL. Following are some of the most important ones among these documents.

- Resolution 02-NQ/HNTW of the 2nd Congress of the 8<sup>th</sup> Central Standing Committee of the Communist Party, on 24/12/1996. The resolution emphasizes there should be more investment in ODL.
- Directive 58-CT/TW of the Central Standing Committee of the Communist Party, on 17/10/2000. The directive emphasizes ODL should be enhanced.
- Resolution of the 9<sup>th</sup> National Congress of the Communist Party, on 22/04/2001. The resolution emphasizes human resources development through ODL.
- Resolution 14/2005/NQ-CP of the Government on the project *Comprehensive Innovation for Education, Vision 2020*, on 02/11/2005. The resolution stresses that the two open universities should be strengthened to increase the scale of ODL.
- Decision 164/2005/QĐ-TTg on the project *Distance education development for the period 2005-2010*, on 04/07/2005. The decision states that Hanoi Open University and the Open University of Hochiminh City are to receive more investments.
- The Law on Education of the Socialist Republic of Vietnam, on 14/06/2005. The law recognizes the equality of all types of education, including ODL.
- Decision 56/2007/QĐ-TTg by the Prime Minister approving the *Program on Vietnam Digital Content Industry Development towards 2010*, on 03/05/2007. The Decision emphasizes the need for research and development investment in learning materials to support distance learning and e-learning.
- The Action Plan of the Ministry of Education and Training for the Period 2011-2016, on 04/05/2012. The development of ODL is a focus of the Action Plan.
- Decision 711/QĐ-TTg of the Prime Minister on Strategy for Education for the period 2010-2020, on 13/06/2012. The strategy emphasizes the need to invest more in Hanoi Open University and the Open University of Hochiminh City.

It can be said that current national policy focus is elevating ODL to a level equal to on-campus programs, and this can be seen as a great opportunity opened to ODL.



Over the past 20 years, ODL has made important contributions to the development of the labour force of Vietnam. Within this paper, data from HOU, a leading ODL higher education institution will be used for illustration.

Up to now, HOU has trained a total of 51,229 undergraduates via ODL. Table 1 below helps to provide more details regarding the number of ODL undergraduates in different fields of study at the university.

**Table 1: Number of ODL undergraduates from HOU in different fields**

No	Faculty	Total
1	Economics	32100
2	Laws	14373
3	English	3171
4	Informatics	1075
5	Electronics	407
6	Finance & Banking	103
7	Bio-Tech	0
8	Tourism	0
9	Industrial Design	0
10	Chinese	0
11	<b>Total</b>	<b>51229</b>

*(Source: Academic Department, HOU, 2013)*

Table 1 shows that most of ODL undergraduates from HOU are in ‘hot’ fields such as Economics and Laws. This reflects the demands of the emerging market of Vietnam in line with its industrialization, modernization and economic integration processes. Demands on different knowledge and skills change over the course of socio-economic development of Vietnam are also reflected in the changes in the number of ODL undergraduates, which is illustrated in Table 2 below.

**Table 2: Changes in demands on different fields of knowledge and skills**

Faculty	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
Economics	2104	1147	1164	697	594	893	596	2220	2887	3116	2955	4961	4304	4462	32100
Laws	0	0	0	0	0	510	657	975	1215	1601	2000	2076	2149	3190	14373
English	384	119	62	165	345	327	288	348	462	239	133	112	82	105	3171
Informatics	0	0	0	0	0	28	192	101	107	158	153	142	74	120	1075
Electronics	0	0	0	0	42	39	74	45	52	0	22	53	43	37	407
Finance & Banking	0	0	0	0	0	0	0	0	0	0	0	0	48	55	103
Bio-Tech	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tourism	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Industrial Design	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chinese	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>															51229

(Source: Academic Department, HOU, 2013)

Table 2 shows that demands on the fields of knowledge and skills via ODL have been in response to the demands of the society in its socio-economic development.

### **The economic value of different modes of learning at HOU**

The costs of a particular system are usually measured in terms of the annual cost per student in the system, the cost per student learning hour, or the cost per graduate. The actual results for any particular system depend upon the relative impact of a number of factors, such as the number of learners or students involved, the number of courses on offer, the number of years over which courses are presented, and the frequency with which materials have to be remade, the technologies used, the way in which each technology is used, the extent to which students are supported by staff, etc.<sup>[2]</sup>

At HOU, basically there are three modes of learning: Face to face (F2F), F2F Distance - teachers go to remote satellite learning centers to deliver lectures face to face to students, and Online Distance – learning and teaching are done mostly online. There are different accounting systems for different modes of learning, and at the end of the fiscal year, the accounting department shall prepare a financial report related to each mode of learning.

In this paper, economic values of different modes of learning at the university are understood as the sum values for the society as a whole. For simplicity, only the economic values for two major stakeholders, the university and the student, are taken into consideration. On the part of the university, the economic value of each mode is the profit that it gains. On the part of the student, two major cost categories are taken into account: expenditures and opportunity costs. For the purpose of this paper, opportunity costs are converted into opportunity earnings; that is if students do not lose opportunity to earn (they do not have to leave work to learn), they are considered to have

opportunity earnings. In this way, the difference between opportunity costs and opportunity earnings is opportunity costs have a minus sign and opportunity earnings have a plus sign in the calculation of economic values. In sum, the economic value of different modes of learning at HOU is calculated as the sum of three items: 1) Profit that the university gains, which has as plus sign, 2) Expenditure on the part of the student, which has as minus sign and 3) Opportunity earning for the student, which has as plus sign.

As discussed above, to calculate the economic values of different modes of learning at the university, three categories are considered: university profit, student expenditure, and student opportunity earning. Data for the university profit are taken from the university's financial report for the fiscal year 2013. Data for the student's annual expenditure and opportunity earning are collected through a survey on three groups of students majoring in Laws; the first group consists of 100 F2F students, the second 100 F2F Distance students, and the third 100 Online Distance students. Table 3 below shows the university profit for different modes of learning.

**Table 3: University profit for different modes of learning at HOU  
(fiscal year 2013)**

Unit: VND

<b>Mode</b>	<b>Number of Students</b>	<b>Profit/student/year</b>	<b>Total profit</b>
<b>F2F</b>	11,523	105,000	1,209,915,000
<b>Online Distance</b>	7,023	71,429	501,645,867
<b>F2F Distance</b>	36,627	82,857	3,034,803,339

*(Source: HOU's financial reports, 2013)*

Table 3 reveals that the university profit per student for the F2F mode of learning is the highest, and the university profit per student for the Online Distance mode of learning is the lowest. However, the sum economic values of each mode of learning for the society may tell a different story.

As discussed above, on the part of students, two major cost categories are calculated: expenditure and opportunity cost. Table 4 below shows the annual expenditure per student (on students' part), broken into five major items, namely accommodation, travel, tuition, materials, and technology.

**Table 4: Annual expenditure per student (on students' part)**

Unit: VND

Items	F2F	Online Distance	F2F Distance
Accommodation	1,450,000	0	0
Travel	370,000	597,000	702,000
Tuition	5,000,000	5,000,000	5,000,000
Materials	1,083,000	236,000	961,000
Technology	107,000	3,070,000	623,000
<b>Total</b>	<b>8,010,000</b>	<b>8,903,000</b>	<b>7,286,000</b>

*(Source: Survey by the author, 2013)*

Table 4 reveals that the annual expenditure per student for the Online Distance mode of learning is the highest; the lowest is for the F2F mode of learning.

So far, from what Table 3 and Table 4 reveal, we can come to conclusion that the F2F mode of learning is the cheapest for students and the most profitable for the university.

However, what we are interested here are the sum economic value of each mode of learning for the society as a whole, with opportunity earnings taken into consideration.

Table 5 below shows the sum economic value for different modes of learning for the society as a whole at HOU.

**Table 5: Economic value for different modes of learning  
(for the society as a whole, per student)**

Unit: VND

Items	F2F	Online Distance	F2F Distance
University profit	105,000	71,429	82,857
Student expenditure	-8,010,000	-8,903,000	-7,286,000
Student opportunity earning	6,374,000	60,720,000	53,126,000
Sum economic values	-1,531,000	51,888,429	45,922,857

*(Source: Calculated by the author, 2013)*

Table 5 shows that the economic value of the Online Distance mode of learning is the highest, and the economic value of the F2F mode of learning is the lowest. In this case, the economic value of the F2F mode of learning has the minus sign, which means the expenditure is higher than the sum of the university profit and the student opportunity earning.

## Conclusions

Due to its advantages, ODL has been developing fast in Vietnam and has made great contributions to the country's socio-economic development. However, for the

sustainable development of ODL, beside the related laws and regulations, there need to be more investments, especially on the fields which are rather 'resistant' to ODL.

Although it is still rather hasty to come to conclusion that Open and Distance Learning is the most economically efficient, as the question of the quality of this mode of learning is still open, it is advisable that this mode of learning should receive a higher status in the educational system.

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# **Evaluation of implementing virtual education as an adjunct to the in-service training courses of physical education teachers**

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## **Abstract**

The revolution of the information and communication technology has greatly improved the teaching capacities in several scientific areas. The development of Virtual Education (VE) as an alternative to face to face interactions expanded the coverage of educational services in distant and rural regions.

VE may be implemented as an aid in updating information, knowledge, attitude, and professional skills of physical education (PE) teachers through providing equal accessing opportunities to short-term in-service high quality trainings.

The current study aimed at evaluation of implementing virtual education in training PE teachers. The study was conducted through the information provided by the experts in the Payame Noor University.

VE in this research refers to using electronic (web-based) media, virtual classes, and e-mails for holding general or specialized training courses for PE teachers.

The research population comprised of 234 faculty members of Payame Noor University. The required data were collected through a researcher-made questionnaire.

Validity of the data was confirmed by seven pundits of VE and its reliability was estimated 0.92 by Cronbach's alpha reliability test. To analyze the collected data using SPSS software, descriptive statistics (frequency distribution, percent, mean, and standard deviation) and inferential statistics (one-group t-tests, independent t-test, and one-way ANOVA) were used.

Results of Friedman test demonstrated that, elements such as "preparing electronic content and presenting it via the Internet", "providing some courses through telecommunication including radio, TV, and satellite channels", and "using computers" were among the determining factors in the efficiency of VE courses. Furthermore, "the inadequacy of teachers' computer knowledge in the field of e-learning", "concerns of stakeholders of educational system of the Ministry of Education on changes and their resulting effects", and "lack of access of PE teachers to computers or the Internet at home" were among the determining factors which limit the establishment of high quality in-service education system for PE teachers.

**Keywords:** Virtual Education, physical education teachers

## **Introduction**

By entering the third millennium, new empirical knowledge and technological advances have made it possible to improve humans' mental representation from the earth as "global village" and information highways (Mashayekh, 2002). Growing development of information and communication technologies (ICT) not only has influenced our life dimensions, but also has transformed educational paradigms by making a strong bridge between people everywhere in the world and introducing the Internet (World Wide Web) to the society. Revolution of information and communication technology has led to the flourishing of educational, economic, and cultural movements and emergence of a novel world. Today, using new information and communication technologies, people could be trained anywhere anytime. Virtual education has provided universities with the possibility to train more clerks, students, and teachers and remove obstacles in terms of shortage of teachers, professors and training places. It is worth mentioning that teacher-student teaching method is one of the first training or teaching methods. After the industrialization of traditional societies, mass production, and expansion and complexity of specialized professions and techniques, it is clear that teacher-student method could not account for the extensive educational needs.

One of the major crises in in-service training systems is the lack of educational facilities and, as a result, low quality of education. Thus, the necessity of updating information, knowledge, attitude, and professional skills of physical education teachers and providing them with equal accessing opportunities to short-term in-service trainings with low cost and high quality, it is essential to investigate developing and expanding training courses via information and communication technology. To overcome the mentioned problems, the aim of this research was to study the feasibility of implementing virtual education in training physical education teachers and take advantage of the comments of professors of Payame Noor University in this regard. Virtual education in this research refers to using electronic (web-based) media, virtual classes, and e-mail for holding general or specialized training courses for physical education teachers. In other words, they can completely or partially perform their learning and training and use educational facilities without attending classes or limiting themselves to a particular time or place.

### **Statistical population and research tool:**

The research population included all the faculty members of Payame Noor University. With regard to Morgan table and in proportion to the population size, the sample size was 234 people. Data collection tool of this study was a researcher-made questionnaire (Fathi & Ejargah, 2005), which was designed considering the set of variables determined as dimensions of virtual learning. According to these dimensions, 55 items were designed and formulated. It should be noted that Craig Greeley considered these dimensions as virtual education dimensions. Moreover, effectiveness was evaluated at the first level of Kirkpatrick's model. The questionnaire was composed of 55 items;

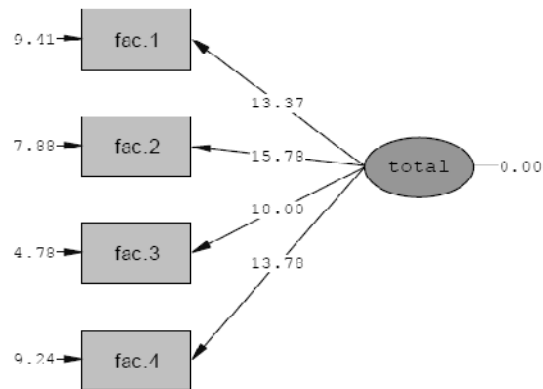
Likert scale was used to organize each item from very low (score 1) to very high (score 5) and professors marked their options in front of each item. Validity of the questionnaire was confirmed by seven pundits of virtual education and its reliability was estimated 0.92 by Cronbach's alpha reliability test.

**Data analysis methods:**

To analyze the collected data using SPSS software, descriptive statistics (frequency distribution, percent, mean, and standard deviation) and inferential statistics (one-group t-tests, independent t-test, and one-way ANOVA) were used.

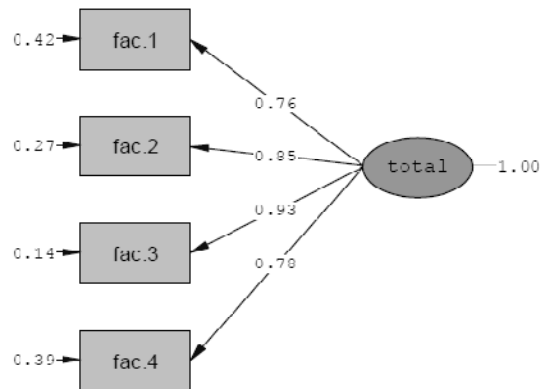
**Research findings:**

Figure 1. Measurement model for investigating virtual education components and their feasibility in the in-service training of physical education teachers



Chi-Square=4.09, df=2, P-value=0.28924, RMSEA=0.013

Figure 2. Measurement model of the paradigms of investigating virtual education components and their feasibility in the in-service training of physical education teachers



Chi-Square=4.09, df=2, P-value=0.28924, RMSEA=0.013



Table 1: Indices of descriptive statistics for virtual education models to use short-term in service education of physical education teachers in virtual education models

Variables	Mean	T	Significance level (2 domains)	Ranking	Priority
Sending educational books, pamphlets and audio-visual CDs for physical education (PE) teachers in school by mail as well as holding the relevant exams	3.49	16.516	0.001	4.25	Sixth
Offering some courses through radio, TV and satellite	3.76	31.837	0.001	4.82	Second
Using computer	3.75	34.547	0.001	4.65	Third
Preparing electronic contents and offering them via the internet	3.85	41.832	0.001	4.99	First
Presenting all the content on the website without holding face-to-face classes	3.50	18.828	0.001	3.98	Seventh
Providing theoretical education of lessons via the website and holding face-to-face classes for practical education and problem solving	3.59	21.612	0.001	4.29	Fifth
Presenting all the course contents and related exams via the internet along with holding 2 or 3 face-to-face problem solving classes during the semester	3.71	32.140	0.001	4.51	Fourth
Attending total course and providing important homework and materials on the school website for better learning and practice of physical education teachers	3.66	24.951	0.001	4.51	Fourth

Results of Friedman test demonstrated that, in this field, variables like "Preparing electronic contents and offering them via the internet", "Offering some courses through radio, TV and satellite", and "Using computer" were respectively among the determining variables for virtual education patterns in the in-service training of physical education teachers.

Table 2: Indices of descriptive statistics for possibility of establishing virtual in-service training system for physical education teachers in the field of determining elements

Variables	Mean	T	Significance level	Ranking	Priority
Providing services for sending the self-study textbooks, pamphlets and audio-visual CDs by mail	3.58	23.236	0.0001	6.74	Fourth
Providing classes equipped to computers, projectors or sport facilities	3.60	21.503	0.0001	7.05	Second
Access to digital libraries and database on the Internet	3.41	17.506	0.0001	6.04	Eleventh
Providing classes equipped to video conference facilities in sports places	3.44	20.320	0.0001	6.06	Tenth
Providing internet webpages for physical education teachers on the university website	3.38	15.805	0.0001	5.99	Twelfth
Providing the sufficient number of computer sites and systems	3.56	23.318	0.0001	6.70	Fifth
Providing high-speed optical fibers and internet bandwidth	3.46	19.241	0.0001	6.21	Eighth
Availability of experienced trainers for using digital software and computer and Internet environments for presenting the contents	3.49	21.545	0.0001	6.25	Seventh
Good knowledge of physical education teachers about using digital software and computer environments	3.42	17.195	0.0001	6.19	Ninth
Curricular planners and experts for preparing computer and digital contents	3.51	23.236	0.0001	6.56	Sixth
Sufficient budget for providing and developing facilities and equipment for launching system of virtual education	3.64	21.503	0.0001	6.87	Third
Presenting the courses through radio, television and satellite	3.73	17.506	0.0001	7.34	First

Results of Friedman test demonstrated that variables like "Presenting the courses through radio, television and satellite", "providing classes equipped to computers, projectors or sport facilities", and "Sufficient budget for providing and developing facilities and equipment for launching system of virtual education" had respectively better roles in the in-service training of physical education teachers.

Table 3: Results of Friedman test and t-test for the possibility of launching virtual in-service training system for the required resources and conditions

Variables	Mean	T	Significance level	Ranking	Priority
Providing services for sending the self-study textbooks, pamphlets and audio-visual CDs by mail	3.49	19.394	0.0001	6.53	Seventh
Providing classes equipped to computers, projectors or sport facilities	3.44	17.595	0.0001	6.38	Eighth
Access to digital libraries and database on the internet	3.68	31.582	0.0001	7.32	Second
Providing classes equipped to video conference facilities in sports places	3.35	17.886	0.0001	5.74	Eleventh
Providing internet webpages for physical education teachers on the university website	3.29	12.917	0.0001	5.84	Tenth
Providing the sufficient number of computer sites and systems	3.55	19.963	0.0001	6.90	Third
Providing high-speed optical fibers and internet bandwidth	3.48	18.633	0.0001	6.60	Fifth
Availability of experienced trainers for using digital software and computer and internet environments for presenting the contents	3.70	27.356	0.0001	7.57	First
Good knowledge of physical education teachers about using digital software and computer environments	3.52	19.070	0.0001	6.85	Fourth
Curricular planners and experts for preparing computer and digital contents	3.52	21.823	0.0001	6.57	Sixth
Sufficient budget for providing and developing facilities and equipment for launching system of virtual education	3.41	17.205	0.0001	6.23	Ninth
Presenting the courses through radio, television and satellite	3.25	13.330	0.0001	5.48	Twelfth

Results of Friedman test represented that variables like " Availability of experienced trainers for using digital software and computer and internet environments for presenting the contents", " Access to digital libraries and database on the internet", and " Providing the sufficient number of computer sites and systems" were respectively among the determining variables of the required resources and conditions for launching virtual in-service training system for physical education school's teachers in Iran.

Table 4: One sample t-test and Friedman test to compare sample mean, population mean, and priority in the limiting factors of launching in-service training system of physical education school teachers

Variables	Mean	t	Significance level (2 domains)	Ranking	Priority
Concern of stakeholders of educational system of Ministry of Education about changes and their resulting effects	3.74	30.657	0.001	5.68	Second
Lack of required expertise for this type of educational system	3.43	17.158	0.001	4.69	Eighth
Lack of adequate funding for launching this educational system	3.50	17.806	0.001	5.00	Seventh
Lack of adequate infrastructures	3.56	21.664	0.001	5.17	Fifth
Lack of cooperation spirit and motivation in Vice-Presidency for Sports and Health of Ministry of Education for entering new environments	3.54	21.859	0.001	5.05	Sixth
Lack of familiarity of professors with the required software for this type of training	3.65	24.702	0.001	5.47	Fourth
Inadequacy of Physical Education teachers' computer knowledge in the field of e-learning	3.79	35.078	0.001	5.81	First
Unwillingness of school stakeholders and principals to change educational system	2.32	-2.734	0.001	2.46	Ninth
Lack of access of physical education teachers to computers and the Internet at home	3.76	35.288	0.001	5.67	Third

Results of Friedman test showed that variables such as " Inadequacy of Physical Education teachers' computer knowledge in the field of e-learning", "Concern of stakeholders of educational system of Ministry of Education about changes and their resulting effects", and "Lack of access of physical education teachers to computers and the Internet at home" were respectively among the determining variables which limit the establishment of physical education teachers.

Although using virtual education is an inevitable issue in today's high-tech world, given the existing problems, lack of software and hardware facilities, absence of digital libraries, and sometimes lack of access to them, development of virtual education will not be easily performed and needs ground-work and making the required fields and facilities. In order to use virtual education, it is recommended for organizations and universities to construct and launch a center called "electronic education center".

Research findings indicated that more than 50% of Iranian physical education teachers had high school diploma and more than 65% had degrees which were irrelevant to physical education and sports (Nasirzadeh, 2013). Since in-service training of physical education school teachers plays a fundamental role in their performance and also the efficiency of the educational system, therefore we have to seriously consider it and thoroughly investigate shortages and crises prevailing in-service training system of these teachers in order to take a step for promoting educational quality of physical education school teachers. Thereby, improved scientific level of all people of the society will lead to the comprehensive development of the country (Fathi and Ejargah, 1997), especially because lifelong learning is not possible without using modern methods.

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# **Developing student learning support for graduate employability through entrepreneurial clinics**

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Improving the educational system is a key step towards creating graduates who possess the knowledge, skills and abilities to participate in the economic area, locally and globally. Recently, developing graduates employability is one of the concerned issues for ensuring their successful transition to the labour market and their access to career oriented employment and furthermore to create jobs. Graduates need to acquire the competencies that will allow them to find work and cope with unpredictable labour market changes. Therefore, Indonesia Open University (Universitas Terbuka/UT) with large potential of 579.261 students (2014) spread out from Sumatera Island to Irian Jaya Island, seeks approaches and strategies to prepare its graduates for the labour market continuously. However, efforts in improving the distance learning system have encountered various obstacles such as limitations in learning facilities, curriculum content, and competency of graduates.

In addressing this issue, survey shows that majority students of UT who are small medium entrepreneurs, employees and job seekers need to have concrete learning facility to support them having certain competencies and skills to compete in labour market. This experimental research aims to discover the prospective of university entrepreneurial clinic which intends to develop the entrepreneur spirit and graduates employability. The study case in Bogor regional office investigates the enthusiasm of the students from all faculties to join entrepreneurial clinic, and addresses top three majors which show enthusiasm for entrepreneurship from management, communication and accounting by 33%, 20% and 18% respectively. The result shows that the students urgently need to be encouraged to develop their confidence, to focus on their high performance, to have good persuasive, communication and negotiation skills in informal curricula. The entrepreneurial clinic succeeds to motivate 53% of students to create their own business after they graduate. However, the others choose to be employed as government officers or private employees. This research includes a discussion of student learning support which will help UT and other education institutions to gain an insight to develop graduates employability through entrepreneurial clinic and a discussion of the changes that could be made to improve the quality of teaching.

Key words: Entrepreneurial clinic, Student Learning Support, Informal curricula.

## **Introduction**

One of the university's roles in teaching and developing knowledge is for preparing its graduates to adapt actively to innovation and knowledge creation as well as to respond to the requirements of labour market. Thus, improving the educational system is a key

step towards creating graduates who possess the knowledge, skills and abilities to participate in the economic area, locally and globally.

It is essential for higher education to recognise the global change and not resistant to its influences while develop university governance (Teodorescu 2006). In doing so, universities are encouraged to utilise knowledge to improve competitive advantage (Cutcher-Gershenfeld 1998; Nonaka, Toyama and Nagata 2000). Some higher education literature support the role of universities as creators of new knowledge through emphasising and managing education and research (Scott 1997; Sizer 2001; Blackman & Kennedy, 2007).

Recently, developing graduates employability is one of the concerned issues for ensuring their successful transition to the labour market and their access to career oriented employment and furthermore to create jobs. Graduates need to acquire the competencies that will allow them to find work and cope with unpredictable labour market changes. However, there is a little evidence that the Indonesian education system is graduating students with specific knowledge and certain skills required to work in highly competitive industry. There is a fundamental gap between what university offer and what employers really need.

This research proposes to define students' characteristics due to graduates' employability in order to compete and gain the employment opportunities. This research also addresses a concrete model of student learning support which will help Indonesia Open University and other education institutions to gain an insight to develop graduates employability through entrepreneurial clinic. Furthermore, the findings discuss the changes that could be made to improve the quality of teaching.

## **Research Methodology**

This research proceeds within a single case of the Indonesia Open University specifically in one of the branches that initiates this project as a prospective model to be applied across nation. The success of its contribution could be applied for other open university around the world. Some literature on study case methodology support a single case study (Yin 1994; Tellis 1997) which in line with this research that is not to generalise from this single case however to understand its contribution to develop understanding in broader theoretical perspectives.

Indonesia Open University (Universitas Terbuka / UT) is an Open and Distance Higher Education that has a lot of potential to be empowered. One of them is subject to the large number of UT students of 579.261 students (2014) spread out from Sumatera Island to Irian Jaya Island. UT serves the higher education for 39 regional offices throughout the demographic island within 34 provinces across nation.

This research conducts experimental study which collects data from a survey, interviews, and academic literature. Questionnaires carried out in order to obtain primary data. The sample is 120 UT students who intake semester two in 2013. In order to explore the students' employability, researchers also interview ten alumni and ten SMEs professionals as the external stakeholders of UT.

This experimental study explores students in preference to study Small Medium Enterprises (SME) and to write it into the scientific work. In this case, UT facilitates and supports the contribution of knowledge to the community. This fits with the current mandate of compulsory scientific publications by the policy from Director General of Higher Education No. 152 / E / T / 2012 regarding compulsory scientific publications and UT Rector's Decree No. 7592 / UN31 / KEP / 2012 regarding the application of scientific writing and scientific publications. Furthermore this research explores the employability criteria as well as the enthusiasm of entrepreneurship.

The experimental is conducted in several stages which adopted from research by Moekijat (1991). First, students who would take the scientific work are grouped based on students' major. Second, students are encouraged to investigate the issues related to accounting management, production, marketing or communication. Students focus on solving the problems of SMEs around these issues. Third, students are equipped with an understanding of SMEs and Indonesian National Standard (Standard Nasional Indonesia/SNI) before commencing to do field work. The level of students' understanding of SMEs and SNI will be measured through a questionnaire right before and after receiving the material of SMEs and SNI. Fourth, the scientific papers made by students can be used as a reference for the development of SMEs in Indonesia. Furthermore, the scientific work can be developed further as their thesis as one of the requirements of graduation.

## **Findings and Discussions**

According to some literatures, efforts in improving the distance learning system have encountered various obstacles such as limitations in learning facilities, curriculum content, and competency of graduates (Webster & Hackley, 1997; Phipps & Merisotis, 1999; Bates, 2005). However, UT continuously seeks approaches and strategies to prepare its graduates to pursue their career oriented employment as well as to create their own business. Figure 1 explains one of the concerns of UT in order to develop graduates employability.

It is crucial for UT to highlight some competencies needed by industries as the requirements for a successful employee or entrepreneur in the coming years will be very competitive. Students who are well prepared with suitable skills will have great opportunities. In doing so, student learning support may develop employability skills through some intensive exercises in the entrepreneurial clinic and encompass the passion of students and academics to actively involve.

The university entrepreneurial clinic bridges the synergy of partnership between small medium entrepreneurs and banking services to conduct trainings & internship and to provide good practices on entrepreneurship & credit monitoring. This program involves all the relevant stakeholders including regional governments, banking, SMEs, universities and alumni. University entrepreneurial clinic is such a business incubator for UT students in their last semester. On the other hand, SMEs can support tutors and lectures to understand the industry standard competencies as well as to improve informal curricula.



This university entrepreneurial clinic is an essential program of employability preparation for students, furthermore, to facilitate the transition from UT distance learning system to the labour market in which certain soft skills and capacity are required. In addition, the knowledge can motivate students to further create their own business after they graduate. Job creation is a significant effort to provide more job opportunities. This university entrepreneurial clinic framework can be developed and disseminated to generate student learning support across the nation.

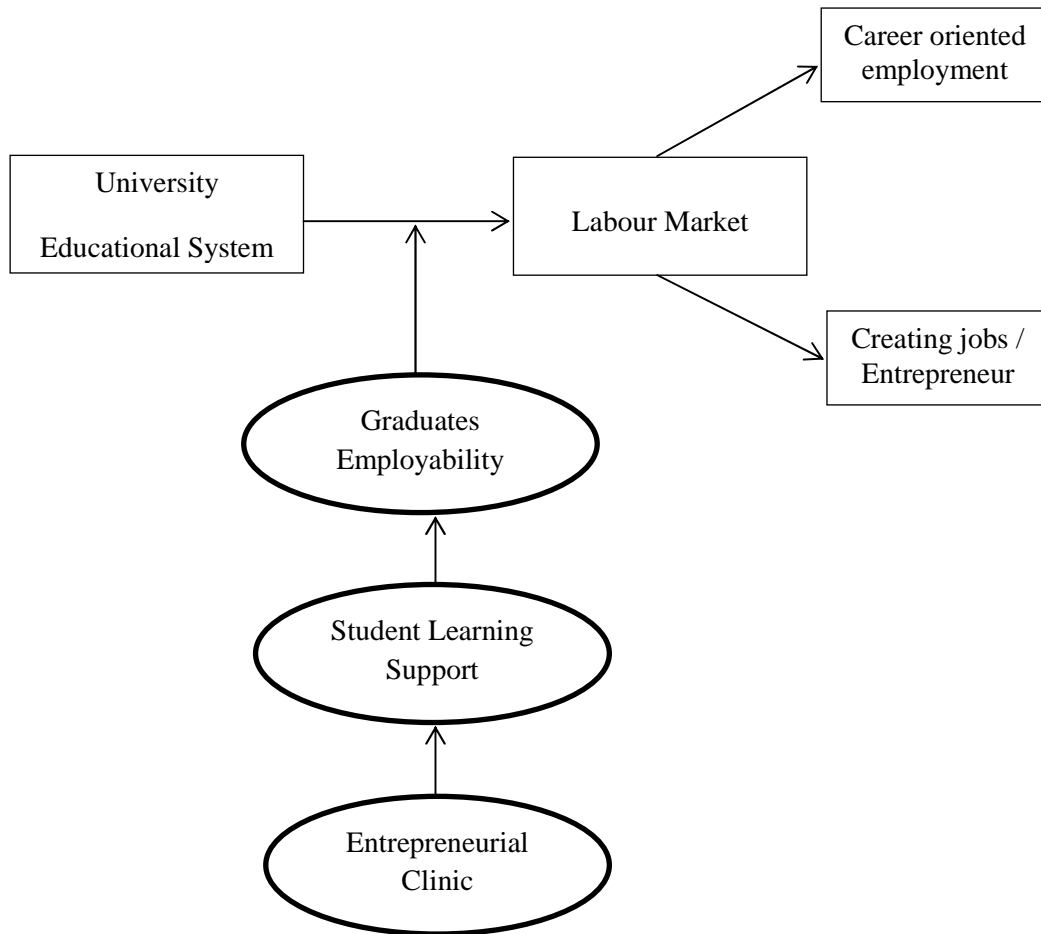


Figure 1. Framework

The case study in UT Bogor regional office investigates the enthusiasm of students from all faculties to join entrepreneurial clinic. All 120 students are from the faculty of economics, faculty of mathematics and natural science, faculty of sociology and political science, faculty of teacher training and education science. The findings address top three majors which show enthusiasm for entrepreneurship as follows management, communication and accounting by 33%, 20% and 18% respectively. It shows that the rest of faculties were not really into the entrepreneurship topic due to personal interest of the students although they have attended the clinic activities in order to start knowing the entrepreneurship. Therefore, the socialization about the importance of this activity is

very challenging but is worth encouraging students to be successful in any path they choose after they graduate.

The entrepreneurial clinic succeeds to motivate 53% of students to create their own business after they graduate. However, the remained 47% choose to be employed as government officers or private employees. In this case, lower interest to be entrepreneur relates to the background of respondents who the majority is 80% employees, SME professionals (10%) and job seekers (10%). The majority has permanent or temporary job at the moment; however, they consider creating SMEs after gaining adequate capital from saving. Job market for employment in Indonesia is really demanding and highly competitive. At the moment, seeking job is the first priority. Based on some interviews, people shift to create a small business if they have plenty of capital, or because they suffer from work stress as a subordinate, moreover, suffer from a long period of unemployment. It is not common understanding that entrepreneurship is as an independent choice and even more a countless spirit to manage independent life. In addition, some students expressed that they are not confident yet to starting their own business due to lack of knowledge, skills and experience on SME.

The survey also shows that the students urgently need to be encouraged to develop their confidence (82%), to focus on their high performance (76%), to have good persuasive (76%), communication and negotiation skills as influencing skills (76%) in informal curricula (Figure 2).

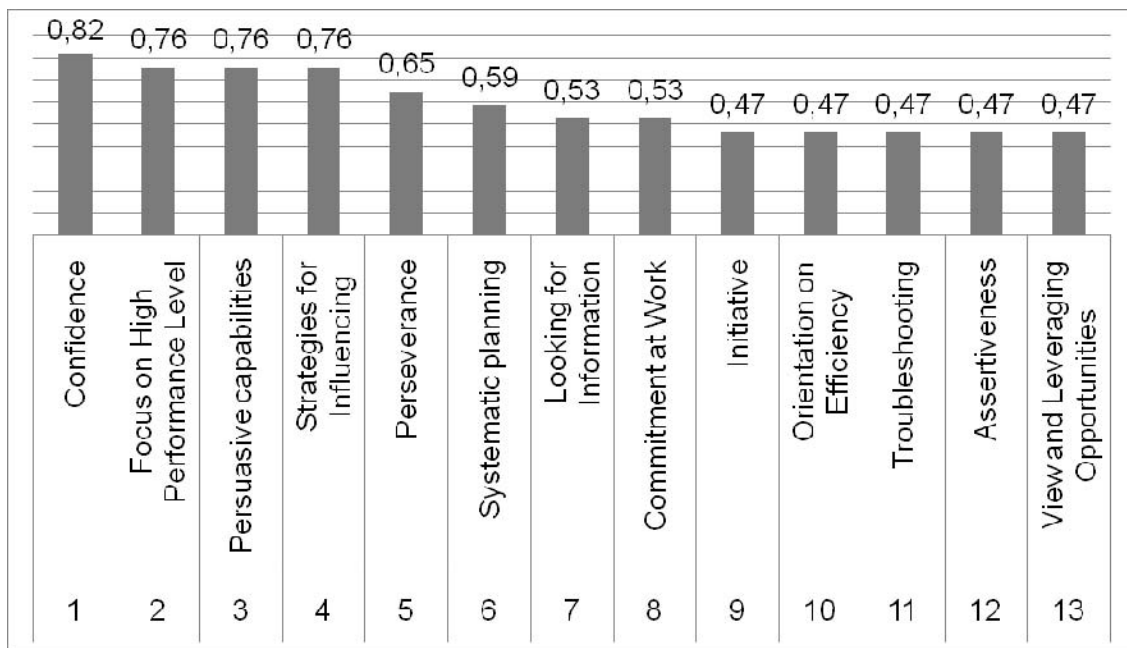


Figure 2. Distribution of participants by most preferred employability factors  
Ten alumni and ten SME professionals as the external stakeholders of UT has been confirmed the result and interviewed regarding those employability traits for the successful of new graduates to cope with and compete in the labour market. The interviews address the urgency to help students improving their capacity for those four crucial characteristics.

Those employability traits are critical to be developed in the curricula of further activities for students. Self-confidence is essential to make them believe about themselves. Higher self-confidence may lead to higher performance in a way that students can take smart risks, be innovative and creative to complete tasks. Students are encouraged to understand some strategies to influence others. In other words, they should have persuasive ability to communicate their ideas and furthermore have good negotiation skills to influence others. Those essential characteristics are fundamental to be prioritised for UT in disseminating approaches through informal curricula. Lecturers should encourage the same attitudes among students and provide the best atmosphere for learning.

However, distance learning has a typical online education with less interaction face to face between lecturers and students. To some extent, this condition may affect students ability to communicate their ideas, to make a solid argument and moreover to have critical thinking. The entrepreneurial clinic may overcome this circumstance by providing a supportive environment for learning within intensive meetings in a clinic with teams and mentors, encouraging students to solve the case problem, expressing ideas & solid arguments, focusing on good process & results, and exercising on writing a report.

Another important agenda is exercising through an internship under monitoring of SMEs. Students are encouraged to write a report not only to produce a mandatory thesis but also to sharpen their analytical thinking on problem solving for SME cases. They also can relate some lecture they receive from tutors to a learning process in which theory and practice can support or contradict each other. This approach can develop students' critical thinking.

In order to improve the understanding of industry standard competencies, this research suggests that UT should strengthen the partnership with SMEs professionals, big company practitioners and alumni to discuss further about the complexity of graduates' employability. Furthermore, UT alumni should be given a periodically survey as a tracer study to let them inform their successful story or give some feedbacks to UT regarding their experiences.

Another service offered by the clinic that help students to learn and start their own business is an interactive website on <http://entrepreneurialcampus.com/>. This is an online platform which showcases some small business created by students and some entrepreneurial creative ideas. As the scope of the site also encompasses specific issues on ways to start up some small business, there is an online forum for discussion on entrepreneurial questions and answers hosted by some SME professionals and tutors. Furthermore, this site is expected to be an official forum for UT alumni to share their entrepreneurial experience.

Online education requires interactive media in which tutors are encouraged to maintain communication with students by giving immediate responses to students' questions, ideas or problems. In such supportive atmosphere students learn to be more confident in both expressing their ideas and performing good actions.

## **Conclusions**

This research contributes to developing student learning support through entrepreneurial clinic in a university scope. This clinic has been piloting programs that cultivate some attitude of self-confidence, high performance oriented, effective communication, and influencing strategies to students. Writing skills can be developed through intensive exercise in internship under the clinic scheme. This student learning support has created a partnership of educators, SME professionals and alumni to refine the employability traits and adapt it into informal curricula. In order to improve the distance learning system regarding graduates employability, university has to strengthen the supportive learning condition and encourage educators to improve two way communications both in class rooms and online teaching media.

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# **An exit survey as baseline data for improving the quality of student learning support**

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## **ABSTRACT**

The quality of service in a higher education institution could be measured by how satisfied the alumni are towards the student learning support that was provided during their study. The alumni are important as they could be potential marketing agents of the university they are graduating from. It is expected that satisfied alumni will be likely to speak proudly about the university they have attended. Universitas Terbuka (UT), as the only higher education in Indonesia—which implements Open and Distance Learning (ODL) —has over 579.261 active students in the second semester of 2013. This massive student body requires a very comprehensive database for both students and alumni as a baseline data to provide appropriate support services. UT has been implementing an exit survey for several years now to update the database of its alumni. The objective of this survey is to gather information on the occupation status, reasons for studying at UT, satisfaction towards student support services provided during enrollment, reasons for selecting their study program and how they learned about UT. This information is useful for improving the quality of student support services provided at UT. This study attempts to analyze the results of UT's exit survey with regard to the potential improvement of student learning support offered to the students.

**Keywords: exit survey, alumni, student learning support**  
**Sub Theme: Research and innovative ODL practices**

High dropout rate has been associated with Open and Distance Learning (ODL), including in online learning (Ludwig-Hardman & Dunlap, 2003; Tait, 2014; Tyler-Smith, 2005). Thus, how to retain the students is much more important than how to recruit new students for ODL institutions (Ludwig-Hardman & Dunlap, 2003). Student support system, consequently, is regarded to be very crucial for student retention in any ODL institution (Dearnly, 2013; Ludwig-Hardman & Dunlap, 2003; Jung and Hong, 2014; Simpson, 2002). Student support in the forms of student guidance and counseling, support from tutors, and effective information and administrative systems is critical to strengthen the ODL students' self-confidence to continue their study (Tait, 2003). In contrast, conventional universities could manage to have a high rate of student retention probably due to a considerably selective entry scheme in addition to a well-developed and matured student support system and learning infrastructure (Scott, Shah, Grebennikov, Singh, 2008).

However, despite being widely studied in higher education (Tinto and Pusser, 2006), student retention in ODL is much less reported than student dropout in this learning

environment (Baxter, 2012). On the other hand, studying about factors affecting students to stay could help institutions to develop appropriate interventions to prevent students' withdrawal. Studying about students' motivation to enroll in an ODL institution and how satisfied they are towards the services they received could help determine the student support to be provided in order to help them succeed in their study. This study attempts to use the exit surveys' results to learn about the alumni's reasons for choosing to study at Universitas Terbuka (UT) and their satisfaction towards the student support provided by the institution. We studied the alumni as alumni of ODL represent successful students who could deal with the obstacles of learning at a distance.

Exit survey is an assessment method that is commonly conducted in an organization to learn about the perceptions of a group of people who are about to leave the organization. This method is effective to learn directly from employees who are leaving the organization (Giacalone, Jurkiewics, and Knouse, 2003) about what the organization could have done better to maintain the employees. This survey can ask about working conditions, career development opportunities, the quality and quantity of workload, or the relationship with other employees or with the supervisors. It is expected that the separating employees will feel free to express their honest opinion about the organization they are leaving. This survey can help the management to find out whether there are recurring problems mentioned by these departing employees (Mazzei, 2008). The information identified can be used to improve the working conditions contributing to high rate of employee turnover. On the other hand, exit survey can also reveal satisfying conditions that should be reserved by the organization.

Exit survey is also widely utilized in the field of education. At the Universiti Tenaga Nasional, Malaysia, for example, an exit survey was administered to students taking the final course in the Outcome-Based Education (OBE) program in the College of Engineering (Goh, Chau, Baharuddin, and Abidin, 2013). The students were asked about the course and program learning outcomes, the overall satisfaction, the career they were planning, and their recommendations for improving the terminal course. At the University Mindanao in the Republic of the Philippines, an exit survey was conducted to evaluate the academic and student services (Tan, Mines, dan Guhao, 2010). The results of the survey indicated that the learning objectives of the program could be achieved by appropriate delivery even though there are some enhancement needed with regard to the expectation and satisfaction of the students. At Universitas Terbuka, Indonesia, exit survey is administered when students are graduating from a program. Graduating students are asked to respond to questions about their job status, reasons for studying at UT, satisfaction during study enrollment, reasons for selecting their study program, and how they learned about UT.

Universitas Terbuka (UT) is a state university in Indonesia that fully implements ODL system. It was established on September 4, 1984 by the Indonesian government. Initially, the ultimate aim of establishing this university was (1) to increase the access to higher education for high school graduates who intended to continue their study and (2) to improve the qualifications of school teachers. The number of first students accepted at UT was more than 60.000 students in 1984. Recently, in the second semester of 2013, UT has around 579.261 active students who enroll in 34 programs of study. The big student body consisted of those enrolled in the primary teacher education (PTE) and in the non primary teacher education programs (NPTE). Almost 80% of the students enrolled in the PTE programs (Elementary Teacher Education and Early-Childhood Education Programs), while the rests are distributed among 32 programs of study. The number of PTE students is enormous as the Government of Indonesia enforced a regulation that every primary school teacher should hold a bachelor degree in primary teacher education (Law No. 14, 2005 on Teacher and Lecturer). Because UT has the capacity to accept a large number of students from all over the country, UT has received the mandate from the Indonesian Government to provide the education for the inservice primary school teachers who haven't attained the required degree. However, many primary school teachers has already met the qualification at present. Accordingly, the number of PTE students at UT is now declining.

The vast decline of PTE student enrollment cannot be compensate by the increase number of NPTE students. In addition, in 2013 the Government also give permission for existing programs of study in any higher education institutions to offer dual mode programs of study. Subsequently, UT is not the only institution offering ODL in NPTE programs in Indonesia. As a results, many prospective students may choose to enroll in the ODL programs offered by prominent conventional universities for different reasons. Thus, it is necessary for UT to understand the reasons of the alumni for choosing to study at UT or for continuing their study at UT in the effort to improve the provision of crucial student support systems.

In serving the students, UT provided student support systems both in the Headquarter and in 39 Regional Offices located in 33 provinces of Indonesia, included one Regional Office serving students resided outside the country. The provision of student support consisted of information provision, academic support, and academic administrative support services (Puspitasari and Dimiyati, 2009). In general, the student support provision is intended to (1) facilitate student learning, (2) support students to become independent learners, (3) respond to students' enquiries effectively and efficiently, and (4) address students' complaints and problems accurately and timely (Puspitasari, 2002). Information provision includes providing information for both prospective and registering students. Information requested could cover enquires about UT, academic calendar, registration period, transfer of credits, etc. In the academic area, support service is provided in the form of tutorial and academic counseling. Academic



administrative support usually related with services regarding registration, learning material distribution, examination administration, report of examination results, and commencement or graduation ceremony. In order to ensure the quality of the student support provided by each regional office, UT has implemented quality assurance system that is in accordance with both AAOU (Asian Association of Open Universities) Quality Assurance framework and the standard quality of the National Accredited Body for Higher Education of Indonesia.

With regard to promote continuous improvement, UT administered an exit survey every year since 2010. The data collected was then used by every program study to improve their services to students. For the purpose of this study, data used for the analysis and discussion will be those collected from the alumni of NPTE programs in 2010 and 2013. It is expected that the data resulted from the exit surveys conducted at UT in 2010 and 2013 will be able to be used as the basis for determining the proper or better student support to ensure student retention. It is expected that the results of the data comparison could pinpoint to UT's limitation and tries to offer some improvement or follow up actions that could improve the student support services.

## **Methodology**

The data analyzed for this paper consisted of secondary data resulted from the exit surveys administered to graduates of NPTE in 2010 and 2013. The respondents were graduating students who have studied in various NPTE study programs at UT. Data were collected with two methods: from graduates responded to surveys attached to the announcement of their study completion at all regional centers and from all the graduates at the commencement days conducted at the headquarter office. The data were analyzed to elicit information such as: (1) occupation status, (2) reasons for selecting their study program, (3) satisfaction towards study support, (4) how they learned about UT, and (5) reasons for studying at UT.

## **Results and Discussion**

### ***Occupation Status***

The number of NPTE graduates responded to the surveys was 1,199 in 2010 and 1,957 in 2013. The proportion of female respondents was a little bigger in 2013 (59.37%) compared to that in 2010 (51.54%). In 2010, the number of respondents who was working students was 91.82%, while in 2013 the number of working students was only 71.07%. The number of female students who did not work in 2013 was much higher than that in 2010. This might imply that a bigger number of younger female students who do not work enrolled at UT at least in the past few years. In fact, the Rector of UT reported in her 2013 Annual Report that 21.5% of UT active students in 2013 aged less than 25 years old (Rector Annual Report, 2014). With around 29% respondents in 2013 reported as not working; it means that UT needs to provide a variety of information on

career opportunities for them. In addition, the data could also imply that more female feel comfortable to study at a distance compared to male. UT can take advantage of this phenomenon by offering study programs that could interest female. Offering programs that attract female to enroll in higher education can help increase the prospect for women empowering in Indonesia.

Occupation Status	2010						2013					
	Female		Male		Total		Female		Male		Total	
	$\Sigma$	%	$\Sigma$	%	$\Sigma$	%	$\Sigma$	%	$\Sigma$	%	$\Sigma$	%
<b>Working</b>	559	46.62	542	45.2	1101	91.82	765	39.09	626	31.98	1391	71.07
<b>Not Working</b>	59	4.92	39	3.25	98	8.17	397	20.28	169	8.63	566	28.92
<b>Total</b>	618	51.54	581	48.45	1199	100	1162	59.37	795	40.62	1957	100

### ***Reasons for Studying at Universitas Terbuka***

The main reasons for choosing to study at UT stated by the alumni were “knowledge improvement” (25.64% in 2010 and 29.01% in 2013) and “studying while remains working” (25.72% in 2010 and 28.16% in 2013). While “assignment from the office” or “granted scholarship” were the least reasons chosen by the alumni as their reasons for choosing to study at UT. Interestingly, since most alumni were workers, we thought that they might choose to study at UT for career advancement anticipated after attaining the degree. However, only 3.83% respondents chose this reason in 2010 and 4.58% in 2013. It is actually encouraging that many respondents wanted to improve their knowledge or continued their study while still working. This means that they consider higher education as a means to improve their professional development. In addition, it was not surprising that many respondents pointed out that they preferred to study at UT to be able to remain working while studying since most of the alumni already have occupation or profession. Furthermore, only a small percentage of the respondents chose to study at UT just to fill their time (2.05% in 2010 and 3.39% in 2013). These respondents could be alumni who were not working at the time of their study at UT. Nonetheless; it was surprising that they managed to complete their study at UT. It could be interesting to learn their motivation to retain their study at UT. UT could do some entry survey to find out the reasons of new enrollment to study at UT in the effort to improve the support the students might need after enrollment. Online survey should be considered in order to obtain the needed information more timely and efficiently. Moreover, exit survey or a follow up survey could also ask about what their experience after enrollment, whether their need of studying at UT was fulfilled or not, and to state the reasons if not fulfilled. This information could be used to improve the student support much more timely than waiting for the exit survey for the alumni could no longer benefit from the improvement of services that might be implemented.

Reasons for Studying at UT	2010		2013	
	$\Sigma$	%	$\Sigma$	%
Knowledge improvement	1077	25.64	1311	29.01
No age limitation to register	563	13.40	591	13.07
Advancement in promotion	161	3.83	207	4.58
Studying while remains working	1080	25.72	1273	28.16
Affordable	737	17.55	591	13.07
Motivating family/children	438	10.43	337	7.46
Filling the time	86	2.05	153	3.39
Assignment from the office/Granted scholarship	57	1.36	56	1.24
Total	4199		4519	

### *Satisfaction towards Student Support Services*

In 2010, the alumni considered services on registration (28.83%), examination administration (28.72%), and easy access to information (28.33%) were very satisfactory. While in 2013, alumni were very satisfied with services on examination administration (27.52%), easy access to information (24.54%), and commencement (24.50%). They regarded the service of examination administration very satisfactory. In contrast, the very unsatisfactory services in 2010 were handling of the grade appeal (2.85%), distribution of learning materials (2.81%), and tutorials (2.41%). The 2013 alumni also considered the handling of grade appeal was very unsatisfactory (2.27%). On the other hand, services on learning materials and tutorials seems to have improved in 2013. Therefore, the student support that was consistently regarded as very unsatisfactory was the handling of grade appeal. UT should find out more about what aspects of this support service did not satisfy the alumni, whether it was the procedure to file a complaint, the time needed to complete the process, the end results, the professionalism or the support given by the personnel, etc. Considering that personnel professionalism was not rated highly both in 2010 and in 2013, UT should evaluate the training for the staff in the student support division in their competencies in quality customer service, both for staff in the Headquarter and in the Regional Offices.

Student Support	2010				2013			
	1	2	3	4	1	2	3	4
	Σ (%)	Σ (%)	Σ (%)	Σ (%)	Σ (%)	Σ (%)	Σ (%)	Σ (%)
Registration	13 (0.96)	39 (2.88)	913 (67.33)	391 (28.83)	20 (1.13)	93 (5.25)	1295 (73.12)	363 (20.50)
Learning Materials	37 (2.81)	254 (19.29)	891 (67.65)	135 (10.25)	17 (0.97)	299 (16.98)	1202 (68.26)	243 (13.80)
Tutorials	27 (2.41)	138 (12.32)	782 (64.84)	173 (15.45)	20 (1.17)	161 (9.39)	1216 (70.95)	317 (18.49)
Akademic Counseling	18 (1.49)	130 (10.78)	862 (71.48)	196 (16.25)	17 (1.00)	165 (9.66)	1234 (72.25)	292 (17.10)
Examination Administration	9 (0.67)	35 (2.60)	915 (67.98)	387 (28.75)	11 (0.64)	101 (5.85)	1139 (65.99)	475 (27.52)
Handling of Grade Appeal	36 (2.85)	169 (13.36)	832 (65.77)	228 (18.02)	38 (2.27)	241 (14.38)	1096 (65.39)	301 (17.96)
Commencement/ Graduation Ceremony	4 (0.43)	46 (4.97)	671 (72.54)	204 (22.05)	16 (1.10)	100 (6.90)	978 (67.49)	355 (24.50)
Professionalism of Personnel	14 (1.09)	77 (5.99)	951 (74.01)	243 (18.91)	14 (0.85)	123 (7.47)	1186 (72.05)	323 (19.62)
Easy Access to Information	19 (0.17)	95 (7.24)	827 (62.99)	372 (28.33)	19 (1.14)	173 (10.38)	1066 (63.95)	409 (24.54)
Total	177	983	7644	2329	172	1456	10412	3078

Notes:

1= very unsatisfied; 2 = unsatisfied; 3 = satisfied; 4 = very satisfied

### Reasons for Choosing a Program of Study

In 2010, around 43 percent of the respondents claimed that they chose their program of study for supporting their work. The second reason frequently pointed out was to improve their knowledge (39.55%). Only a small percentage of respondents in 2010 chose pursuing a degree as their main reason for choosing their program of study (16.65%). In 2013, Almost 50% of the respondents chose their program of study in order to improve their knowledge, followed by the intention to support their work (38.66%). A reason that was pointed out by the smallest number of respondents was to pursue a degree (14.43%). Comparing the data of 2010 and 2013, pursuing a degree was consistently reported as the least reason for deciding a program of study. These results indicated that the alumni regarded improving their professional development as more important than just attaining a degree, which is a very good sign for the development of human capital in Indonesia. Having learned that students were more interested in knowledge improvement, UT must ensure that the learning materials are always up-to-date. Revisions should be based on the discussions with subject matter experts, both academicians and practitioners. Moreover, exit survey could be improved by asking for the alumni suggestions concerning learning outcomes of the courses and programs. Working students' perceptions of what courses to be improved in terms of the intended learning outcomes could enhance the quality and relevance of the study of programs offered.

Reasons for Choosing a Program of Study	2010		2013	
	$\Sigma$	%	$\Sigma$	%
Supporting the work	1029	43.81	1045	38.66
Improving their knowledge	929	39.55	1268	46.91
Pursuing a degree	391	16.65	390	14.43
Total	2349	100.00	2703	100.00

### *Source of Information Introducing UT*

In 2010, respondents reported that they decided to enroll at UT after introduced to UT by friends (31.99%), UT alumni (16.84%), or UT students (15.32%). Likewise, in 2013, the main information to introduce about UT was friends (26.38%), family member (14.86%), UT students (11.33%), and UT study group (10.31%). The source of information that was consistently introduced them to UT so they become interested to enroll at UT was friends and UT students. We could guess that the friends who introduced them to UT were somehow associated with UT. Other information which we assumed to be able to reach more people, such as radio, television, brochures, and banner, turn out to be ineffective. In this case, UT is required to continuously improve the service quality to its students so that they could voice their satisfaction to their family members, friends, colleagues. Satisfied alumni could become very good marketing agency. Thus, family member who are a satisfied UT student actually could become a very effective agent to introduce UT to other family members.

Source of Information	2010						2011					
	Female		Male		Total		Female		Male		Total	
	$\Sigma$	%	$\Sigma$	%	$\Sigma$	%	$\Sigma$	%	$\Sigma$	%	$\Sigma$	%
Friends	261	15.20	288	16.78	549	31.99	428	15.70	291	10.67	719	26.38
Magazine	4	0.23	2	0.12	6	0.35	15	0.55	10	0.37	25	0.92
Banner	4	0.23	9	0.52	13	0.76	12	0.44	20	0.73	32	1.17
Radio	1	0.06	3	0.17	4	0.23	5	0.18	0	0	5	0.18
Television	8	0.47	19	1.11	27	1.57	17	0.62	17	0.62	34	1.25
Brochures	15	0.87	29	1.69	44	2.56	40	1.47	39	1.43	79	2.90
Internet	24	1.40	45	2.62	69	4.02	77	2.83	92	3.38	169	6.20
Exhibition	0	0	0	0	0	0	0	0	3	0.11	3	0.11
Newspaper	16	0.93	26	1.52	42	2.45	20	0.73	24	0.88	44	1.61
Teacher	18	1.05	12	0.70	30	1.75	71	2.61	39	1.43	110	4.04
Supervisor	40	2.33	35	2.04	75	4.37	52	1.91	56	2.06	108	3.96
UT Student	142	8.28	121	7.05	263	15.32	179	6.57	130	4.77	309	11.33
UT Alumni	140	8.16	149	8.68	289	16.84	150	5.50	112	4.11	262	9.61
UT Study Group	38	2.21	36	2.10	74	4.31	163	5.98	118	4.33	281	10.31
Family member	65	3.79	40	2.33	105	6.12	273	10.01	132	4.84	405	14.86
UT Regional Office	62	3.61	64	3.73	126	7.34	83	3.05	57	2.09	140	5.14
Total	838	48.83	878	51.16	1716	100	1585	58.16	1140	41.83	2725	100

## Conclusion

UT has conducted an exit survey every year since 2010. The data was used by each program of study to evaluate the support provided for the students. However, no report has been produced to describe the exit survey results for the benefit of improving overall student support provision. This paper attempts to discuss the results of the exit surveys conducted in 2010 and 2013 to compare the recurring data that could identify UT's weak spots and offer some enhancement or follow up actions that could improve UT student support services. With a good number of a younger and non working students attended UT, the institution needs to provide a variety of information on career opportunities for them. UT could offer more programs that may interest female students as the number of female, non working students seemed to be increased in recent years. UT could do some follow up survey to learn their motivation to retain their study at UT, what satisfy their needs after enrollment and what expectations are not fulfilled. As the handling of grade appeal was mentioned to be the recurring unsatisfactory service, an evaluation should be conducted to determine the weakness of the system to improve the quality customer service in this area. After all, satisfied students are an effective source of information to introduce UT to the community, especially to family members, friends, and colleagues. Finally, the exit survey should add some questions to elicit information on what courses to be improved in terms of the intended learning outcomes. This information could enhance the quality and relevance of the study of programs offered.

The information of the exit survey could be more meaningful by improving the instrument. Survey could be an effective and efficient way of collecting information provided it is carefully designed. Therefore, the instrument used for the exit survey should be reviewed by involving faculty members as the main users of the data to ensure that it could elicit information needed by programs of study. Finally, the study could be much improved if raw data could be retrieved in order to conduct more sophisticated methods of analysis to better understand the alumni characteristics and expectations in relation to their achievement.

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# Enhancing the effectiveness of online tutorials for economics education's final assignment to improve student mastery

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Universitas Terbuka (UT), higher education institution in Indonesia fully implemented distance education system, provides online tutorial (tuton) for Final Project Course (FPC) in Economics Education Program (EEP) to improve learning quality of its student who had almost completed the Program. Materials for tuton were parts of those written in the modules and the tuton developed according to the needs of students in order to master the course. To improve the effectiveness of the FPC's tuton, it is necessary to improve the tuton implementation so that students could gain positive results. To achieve this objective, this study was conducted to identify barriers to student participation in the FPC's tuton as well as to evaluate relationship between students' activities in FPC EEP's tuton with student mastery of the materials as reflected in the students' final scores. Results from the study are expected to enrich learning theory, especially with regard to the provision of learning support in distance education system. Subjects in this study were 38 out of 41 registered-students in the FPC's tuton in the first semester of 2013. This study employed document study and survey. In general, factors that support students engagement in the FPC's tuton are easy access to computers and the Internet, familiarity with computers and the Internet, understanding the benefits of technology in learning process, and ability as well as willingness to implement self-study. On the other hand, respondents voiced barriers associated with their limited activities in the FPC's tuton which include limited access to the Internet, low perception of the roles of media in learning process, limited time, as well as limited ability to operate computers and the Internet. Statistically, only quality of assignment uploaded has a relatively high correlation with final score ( $P=0.76$ ). Other correlation fall below 0.50 in Pearson correlation score. Pearson correlation between students' final score with number of days' log-in, opening initial materials, quality in discussions were 0.36; 0.47; 0.44 respectively. Correlation between initiation materials looked-at with number and quality of discussions engaged were 0,47 and 0,44. Base on these findings, it is recommended that some discussions should be replaced by assignment. It is also recommended to provide easy access to computer and the Internet and familiarity students with the use of computers and the Internet. In addition, it is also recommended to enhancing the tuton by complying materials in the tuton with materials in the modules and increasing congruency of topics in discussion with materials on the modules.

Keywords: Economics Education Program, learning support, online tutorial, Universitas Terbuka

## 1. Background

Students' learning outcomes for Final Project (FP) Course in Economic Education Program (EEP) at Universitas Terbuka (UT) is relatively low as reflected in the low GPA, which revolves around the value of two. Just enough to meet the minimum requirements to graduate (UT Catalog 2014). This low GPA, although qualified for graduate, shows the limited competence of graduates. In other words, graduates have only a minimal competence in performing the role of economic education teacher.



From a teacher who only has minimum competency, it is hard to expect optimal learning process. In other words, lack of teacher's competence will in turn affect student learning outcomes.

As distance education institution, UT uses media to facilitate learning process. Printed learning materials, known as modules, are used as primary means to deliver learning materials. To improve the quality of students, since the first semester of 2010, UT provides learning facilities in the form of on-line tutorial (tuton). Tuton is expected to improve the quality of student learning. One of tuton provided is for FP course. Students eligible for the FP course are those who have completed a minimum of (N-19) course credits with a GPA of at least 2. The tuton takes eight weeks to complete. Data showed that the majority of students (69%) logged-in less than 17 days during the tuton period reflecting that, in average, students logged-in 2 days per week. During logs-in, students are expected to download the initiation material to be learned and mastered as well as to post on discussion forums in accordance with the discussion topics that had been prepared by tutors. Discussions are replacements for interaction between students as well as between students and tutors.

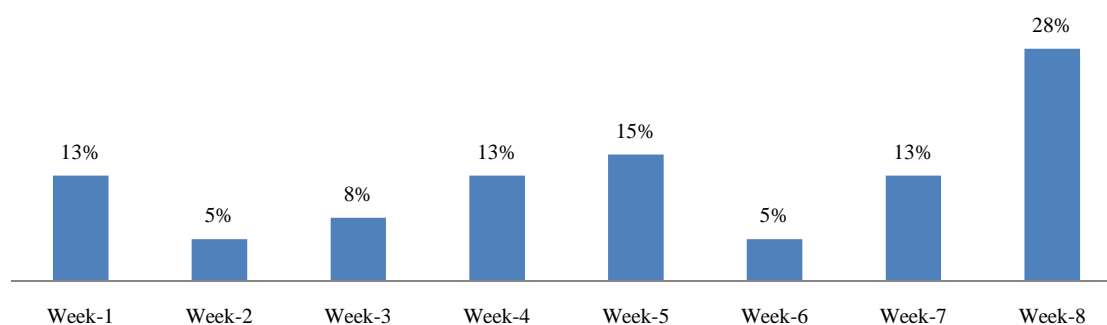


Fig. 1. Distribution of Respondents based on Their Total Log in in EEP Tuton (N=41)

Active engagement in tuton are expected to escalate students performance because of some reasons such as, among other things, flexibility, less expensive than face-to-face learning, and easy for tutors to update and revise the material (Hopey & Ginsburg, 1996; Kilian, 1997; Owston, 1997). Nevertheless, online learning also has constraints derived from situation, epistemology, psychology, pedagogy, technical, and cultural aspects (Espinoza, et. al., 1996; Garland, 1993; Galusha, Kaye & Rumble, 1991; Lewis and Romiszowski, 1996; Sherritt, 1992; Sherry, 1996; Shklanaka, 1990; Spodick, 1996). Details of each aspect are elaborated in Table 1. Constraints in online learning could only a result of one aspect or combination of several aspects.

Aware of the existence of these constraints and obstacles students may face during their tuton activities, UT has included certain approaches to make sure that students could get full benefit from the tuton. These approaches include providing initiation materials either materials from the modules and/or additional material where students could enrich their readings, discussions where students are given opportunities to exercise their mastery by expressing their analysis on certain topics, and assignments where students could be assessed of their mastery of the learning materials. To some extend, the assignments are developed using students' real-life contexts and experiences in

accordance with Learning Theory that suggests that learning is promoted or enhanced in when these two conditions are involved in the learning process (Driscoll, 2002).

Table 1. Constraints in Online Learning

Aspects	Constraints
Situation	<ul style="list-style-type: none"> <li>• Limitation of formal agreement on the program</li> </ul>
Epistemology	<ul style="list-style-type: none"> <li>• Non-educational issues take over educational issues</li> </ul>
Psychology	<ul style="list-style-type: none"> <li>• Faceless learning</li> </ul>
Pedagogy	<ul style="list-style-type: none"> <li>• In adequate ability to self-directed learning</li> </ul>
Technical	<ul style="list-style-type: none"> <li>• Lack of time to implement online courses</li> <li>• Lack of learning resources (including the library)</li> <li>• High cost of developing learning materials</li> <li>• The absence of a national policy, funding priorities, and policy leadership</li> <li>• The more advanced the technology used, the greater the likelihood of errors</li> <li>• Lack of technology assistance</li> <li>• Time needed to implement online learning</li> </ul>
Cultural	<ul style="list-style-type: none"> <li>• Concerns of shifting role from teaching to computer</li> <li>• Shifting in traditional values attached to the process of obtaining a degree</li> <li>• Instructors' culture</li> <li>• Resistance to change</li> </ul>

Students register in FP course are automatically registered in the FP course's tuton. The tuton can be accessed through UT website ([www.ut.ac.id](http://www.ut.ac.id)). The students have to activate their tuton account where they will be given user name and password (Fig. 2). Only then, the students could engage in the tuton. To make sure that students could maximize their interaction in tuton, students are asked to read 'Online Tutorial Guidance for Students' which consists of explanation about the tuton such as roles of students and tutors, activities, duration and deadlines in the online tutorials (Fig. 3). Tutorial sessions to familiarize students with system used in the online tutorial were also provided.

Tuton as one type of learning support UT provided for students is aimed at increasing students' mastery. This research analysis the relation between EEP students' activities in tuton with their level of mastery in FP course in the first semester of 2013. Students engagement in tuton were approached from students' activities in term of frequency of opening initiation materials, frequency and quality of discussions, as well as frequency and quality of assignments uploaded in the FP course tuton. Meanwhile, final scores for FP course were used to measure students' mastery of the course.



Fig. 2. Student Scativates His/her Account in this Page

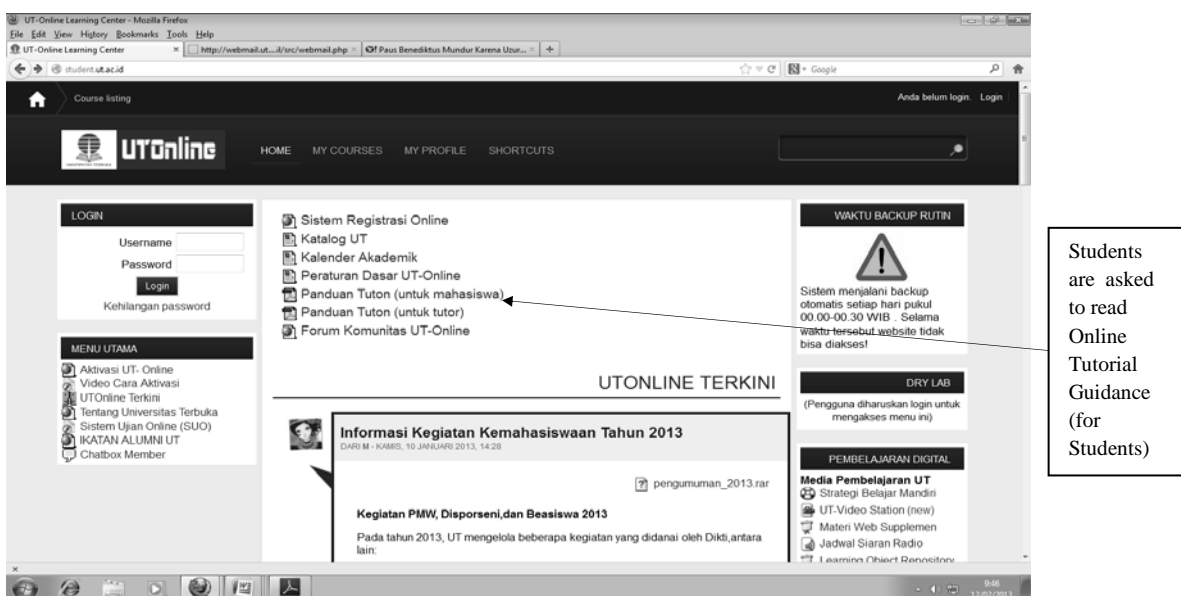


Fig. 3. Students are Asked to Read the Tutorial Guidance (For Students) in this Page

Data were collected by sending questionnaires via e-mail and mail to all students participating in 2013 tuton in FP course. First round of e-mails were send in April-May 2013 to all 41 registered-students with 12 students returned the completed questionnaires. Second round of e-mails were send to 29 students who had not returned the questionnaires in the first round. A number of 6 students returned the filled-out questionnaires. Finally, questionnaires were send to home addresses of 23 students who had not returned questionnaires form the first dan second rounds of e-mailed questionnaires with 20 students returned the filled-out questionnaires. Therefore, there were 38 respondents in this research, 78% women and 28% men. The majority of respondents (38%) aged between 25-44 years.

## 2. Findings & discussions

### 2.1. Factors Affecting Student to Register in FP Course

Experts say that the availability of technology, flexibility, easy to use, as well as relatively cheaper than face-to-face learning are some of the factors that favor the utilization of educational media (Hopey & Ginsbur, 1996; Kilian, 1997; Owston, 1997). Most respondents agreed with some of these. However, contrary to what experts say, some respondents perceived that access to computer and the Internet as constraints to their learning. Yes, respondents agreed that computers and the Internet could be beneficial for learning process but since they had difficulties to access computer and the Internet, the respondents found it hard to take advantage of computer and the Internet. This perception could be rooted from relatively low Internet penetration where only 15% of Indonesia population have access to the Internet (Millward, 2014).

Almost all (96%) of the respondents who are teachers in junior and senior secondary schools had known the Internet for more than 5 years. As much as 85% of the respondents said they need the Internet to facilitate their work. Specifically, 96% of the respondents stated that they used the Internet to search for news and only 25% of them used the Internet to browse for learning material that can be used to add or enrich teaching materials in their classrooms. Notwithstanding, only 4% of the respondents were aware that they can utilize the Internet as learning resources for their study at UT. The fact that 96% of the respondents used the Internet to browse for news but only 4% of them used the Internet as learning resources for their study at UT should be used as entry point to familiarize students with website related to course contents. Respondents had already known that they could browse many things in the Internet, UT just has to provide links related to courses' content.

Reasons of respondents to register in FP course, which completed with tuton, are (1) requirement to finish their study (93%), (2) using technology for learning enhancement (36%), (3) opportunity to enrich their knowledge and skills (29%), as well as (4) opportunity to discuss topics related to the course (12%). In order to graduate from the EEP, student has to pass FP course. Therefore, it is understandable that almost all of the respondents stated that they registered in the FP course in order to fulfill the graduation requirements. Meanwhile, more than one-third of the respondents stated that they register for the FP course because they wanted to experience using technology (in this case the Internet) in learning process. They knew the consequence of using the technology (familiarity with computer and the Internet). Notwithstanding, the majority (92%) of respondents had been using computers more than 6 years and none of the respondents mentioned their inconvenience in using computers or the Internet. This condition could be exploited to optimize the utilization of FP course's tuton because Galusha (2013) found that one of the obstacles learners faced in utilizing online learning is inconvenience of using a computer or the Internet. In this regard, some of the respondents mentioned that UT should provide trainings to operate computer and utilize the Internet.

Meanwhile, the needs to meet and discuss learning materials with other students and tutors as voiced by 12% of the respondents is facilitated by discussion forum in the tuton. However, in average only 8% of registered-students posted in the discussion

forum each week. Moreover, there was no discussion posted in week 3 and 5. This research does not question reasons for low students' engagement but there are several possible reasons for this contradictions such as too-difficult topics, or no time to engage in discussion because assignments were due in week 3 and 5. Unrelated topics could be waived as a reason since more than 80% of the respondents spoke highly of the quality of topics discussed (Table 2).

## 2.2. Perception of various aspects of tuton

In general, Respondents had good perception towards various aspects of tuton, namely benefit, tutor responses, and quality of the initiation materials. They even recommended some improvements to the betterment of the tuton (Table 2). In term of benefit from tuton, almost 90% of the respondents stated that they benefitted from initiation materials, discussions, and assignments. However, they mentioned the importance to focus on learning materials that will be tested, they did not need additional materials if the materials were given as a means to broadening their insight. This findings should encourage tutors to prepare learning materials in line with course and evaluation blueprints.

Table 2. Respondents' Perception of Various Aspects of Tuton (% , N=38)

	Good	Fair	Bad	NA
A. Benefit to mastering the learning materials				
• Initiation materials	89			11
• Discussions	86			14
• Assignments	96	4		
B. Tutors' Responses				
• Correctness in answering students' questions/inquiries	86	10	4	
• Promptness in answering students' questions/inquiries	86	14		
• Clarity in answering students' questions	79	13	4	4
• Activities in discussion forum	71	25		4
C. Initiation Materials & Topics of Discussions				
• Congruency	96	4		
• Depthness	93	7		
• Pertinence	93	7		
• Comprehensiveness	86	14		
D. Improvement Recommended				
• Enrichment in topics of discussions	92	4	4	
• Enrichment in initiation materials	86	14		

Meanwhile, respondents also had high perceptions in terms of tutor responses except in one aspect, tutor activities in discussion forum. However, this could not be blamed solely on tutors. Data showed that in average only 8% of students engaged in tuton weekly. This small number of posting could limit tutor comments. Hence, a chicken-and-egg situation occurs: limited postings limit tutor's activities. Nonetheless, because of the importance of the discussions in the learning process, UT has to encourage students to be more active in discussion and at the same time encourage tutors too. It is

also in line with what Quitadamo and Brown (2001) said that discussion could create greeter student motivation and excitement for learning. Tutors could also develop authentic situations and scenarios as a stimulus for learning, representing and simulating real world problems and concepts which Quitadamo and Brown (2001) belief can provide an important structure for student thinking could. Tutors could also emphazise authentic tasks in context rather than abstract out-of-context activities to create a greater likelihood of learning for students (Driscoll and Carliner, 2005). UT has to make tutors aware of students' needs related to learning experience, engagemant and activities that enable students to analyze, synthesize, and evaluate information while constructing knowledge (Driscoll & Carliner, 2005).

These should not be difficult to achieve since respondents had highly percieved both the quality of intiation materials and topics of dicussions although at the same time, 92% of the respondents stated the necessary to enrich topics of discussions only 12% of the respondents voiced their need for discussion facilities. Notwithstanding, only 8% respondents engaged in discussions in a week. Based on these findings, UT needs to evaluate topics for discussion and how tutors motivate students to actively participate in the discussions. Nevertheless, to success in the tuton, students need exercise their writing skills, be self-motivated, and make a time commitment to learning as states by Gollady, Prybutok, and Huff (2000) and Serwaka (2003).

Table 3. Factors Support and Inhibit Respondents Activities in FC Tuton

Aspects*	Supporting Factors	Inhibiting factors
• Situation	<ul style="list-style-type: none"> <li>• High access to the Internet</li> <li>• Familiarity with computer</li> <li>• Familiarity with the Internet</li> </ul>	<ul style="list-style-type: none"> <li>• Low access to the Internet</li> <li>• Unfamiliarity with computer</li> </ul>
• Epistemology	<ul style="list-style-type: none"> <li>• Useful in learning process</li> </ul>	<ul style="list-style-type: none"> <li>• -</li> </ul>
• Philosophy	<ul style="list-style-type: none"> <li>• Media as a tool</li> </ul>	<ul style="list-style-type: none"> <li>• Media could not replace lecturer</li> </ul>
• Pedagogy	<ul style="list-style-type: none"> <li>• Willingness to self-study</li> </ul>	<ul style="list-style-type: none"> <li>• Inability to manage learning process</li> </ul>
• Technical	<ul style="list-style-type: none"> <li>• Relatively low-cost to learn</li> </ul>	<ul style="list-style-type: none"> <li>• Time limitation</li> <li>• Limitation ability to operate computer</li> <li>• Limited access</li> <li>• Poor quality of network</li> </ul>
• Cultural	<ul style="list-style-type: none"> <li>• Familiarity with computer in daily chores</li> <li>• Familiarity with the Internet for daily chores</li> </ul>	<ul style="list-style-type: none"> <li>• Not familiar with the Internet</li> </ul>

\* Aspecs and indicators are derived from Espinoza, et. al., 1996; Garland, 1993; Galusha, n.d.; Kaye and Rumble, 1991; Lewis and Romiszowski, 1996; Sherritt, 1992; Sherry, 1996; Shklanaka, 1990; dan Spodick, 1996

In the meantime, as detailed in Table 3, respondents seemed to be sharply split in term of their familiarity and access to computer and the Internet. On one hand, some students stated that they had easy access to computer and the internet as well as familiar to use them. On the other hand, some students mentioned their difficulties and limitation to access and to use computer and the Internet. Therefore computer and the Internet served both as supporting and inhibiting factors for students to be actively paticipate in tuton. UT has to bridge this by providing training for students who have

not yet familiar with computer and the Internet. At the same time, UT could work with Internet kiosks to provide access. However, none of the respondents said anything about isolation (Brown, 1996) or frustration, anxiety, and confusion (Hara & Kling, 2000, Piccoli, Ahmad, & Ives, 2001) which commonly identify as potential problems of e-learning.

### **2.3. Correlation between activities in tuton with final score**

A 0.44 in Pearson correlation between frequency and quality in discussions with final score reflects weak correlation between them. This finding contradicts to studies showing that student's active involvement in the learning process enhances learning (Benek-Rivera & Mathews, 2004; Sarason & Banbury, 2004). This could, in part, be because of limited interaction between students and students and tutors as reflected in the low number of discussions. This findings also contradicts Picciano (2002) and Watkins (2005) finding that interactive instruction is resulted in positive learning outcome. Actually, as Johston, Killion, and Oomen (2005) and Pallof and Pratt (2003) found out, online coursework has the potential to create environments where students actively engage with materials and learn by doing, defining their understanding as they build new technology. However, the institution has to prepare facilities so that the potential could become reality.

Meanwhile, a 0.76 Pearson correlation between quality of assignment uploaded and final score shows that students who excell in assignments have high potential to get high score in final. It is possible that students have enough readings and exercises while doing the assignments. Therefore, they did not find difficulties in doing their final exam. However, frequencies of opening initial materials had low Pearson correlation with final score (0.47). It is expected that the more students open intial materials, the higher their score in final exam based on assumptions that opening initial materials could expose students to more learning materials. However, findings whoed that opening initial materials only have low relation with final score. In addition, the Pearson correlation between number of initiation materials looked at with number and quality of discussions engaged were only 0,47 and 0,44 respectively. It is, once again, showed that initial materials only had low correlation with number and quality of discussions engaged.

### **3. Conclusion**

The activity in tuton with the highest correlation with students' final scores was quality of assignment uploaded (Pearson correlation = 0,76). Meanwhile, the Pearson correlation between number of initiation materials looked at and number and quality of discussions engaged were only 0,47 and 0,44 respectively. Based on this results, it is recommended that some discussions should be replaced by assignment. Therefore, instread of having eight sessions/topics of discussios and three assignments, it is recommended to have 6 discussios and four assignments. Students tend to be more serious in doing their assignments rather than engaging in discussions.

Based on respondents' assessment of their activities in tuton of the FP course, it is recommended that UT provides students with easy access to computer and the Internet by, for example, works together with Internet kioks. It is also recommended that UT conducts training for students to familiarize them computers and the Internet. Meanwhile, to enhance the benefit of tuton in FP course for students, it is recommended that EEP Study Program making sure compliance of materials in tuton with the material in the modules and congruency of topics in discussion with materials on the modules. These could be started by conducting workshops with tuton's tutors where information of the importance to revise initial materials and topics for discussion is provided.

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# **A study on non-completing students of the Certificate in Pre-school Education programme at the Open University of Sri Lanka**

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## **Abstract**

The Department of Early Childhood and Primary Education in the Open University of Sri Lanka (OUSL) has been conducting the Certificate in Preschool Education Programme since 1980s. The students' enrollment of this programme is very high due to its popularity among preschool teachers. However, the completion rate of the programme is gradually decreasing. This study attempts to investigate the problem of non-completion of the students enrolled in the programme. The objectives are to find out the background characteristics of students of this programme and the factors affecting students' non-completion. Finally, it makes recommendations to minimize the students' non-completion rate in order to improve the quality and effectiveness of this program. The design of the research was survey method. Questionnaires and telephone interviews were used as instruments for data collection. The sample was selected from non-completion students selected from those participating in the programme throughout the past ten academic years from 1998/1999 to 2009/2010. The findings have indicated that the majority of individuals registering in the program is between 17-35 years age who are involved in the field of child care. Most of them are preschool teachers while 37% are not employed. The majority of the sample is from Colombo Centre and the second highest sample is from Kandy Centre. All the other centres comprised 25.8% of the sample. The majority had enrolled in the program to acquire knowledge. The main reason for non-completion was difficulty of finding time. Apart from that, absence of support from the family, fear of facing the final examination due to lack of time for studies, failure to obtain eligibility to complete program by submitting assignments on time, inability to maintain studentship and inability to complete practical component. Taking the above factors into consideration it could be recommended that there should be a mechanism to help students to solve their personal problems and maintain clear channels of communication.

**Key words:** Non-completion, Preschool programme, Open and Distance learning

## **Introduction**

Distance education is a powerful and growing force in education at university level and it focuses on teaching methods and technology with the aim of delivering learning experiences, often on an individual basis, to students who are not physically present in a traditional educational setting such as a classroom. As Garrison (1987) states, distance education, or distance learning, is a field of education that focuses on the pedagogy and andragogy, technology, and instructional systems design that aim to deliver education to students who are not physically “on site” as in a traditional class room or campus. A large number of students are learning through the distance education in the world today since it has opened the avenues for almost all who wish to be educated at present.

Although the student number is large in the distance mode, the percentage of students who complete the programmes is very low when compared with the conventional universities due to various reasons and it was identified that both institutional and non-institutional factors affect student persistence or withdrawal from distance education programmes.

The Department of Early Childhood & Primary Education of the Open University of Sri Lanka (OUSL) has been conducting the programme on Certificate in Pre-school Education (CPE) from the time when the Open University established in 1980. This programme also has been designed through the mode of distance learning similar to other programmes in OUSL.

This programme aims to enable the students to gain knowledge, skills and attitudes related to the total development of the pre-school children and to enable the students to develop the competencies related to the teaching learning process in the pre-school. The duration of the programme is one year, and consists of compulsory theoretical courses, practical training and project work. The CPE Program is conducted at sixteen centers including Regional Centers and ten Study Centers via all three media. The students' enrollment of this programme is very high. However, the statistics show that only around 60% have completed the program successfully within past ten academic years. Thus this study attempts to investigate the problem of non-completion of the programme. Finally, it is expected to make recommendations to minimize the students' non-completion rate in order to improve the quality and effectiveness of this program.

## **Literature Review**

The non-completion rate is a closely monitored parameter that serves to evaluate distance learning programs. The problem of non-completion in distance education is widely recognized and has been subjected to consideration and investigation. (Garrison, 1987, Bernard and Amnudsen, 1989; Kember, 1989, Zajkowski, 1992; Thompson, 1997) The non-completion rates for distance education courses are higher than those for comparable on-campus courses. Non-completion has been given much importance in the area of research in distance education. Reckkadal (1983) has stated that over the last ten to twenty years non-completion is the problem which has been given the highest priority by researchers within distance education.

Some studies reported psychological reasons for non-completion such as a feeling of inadequacy or distress (Rickinson and Rutherford, 1996); lack of confidence (Cullen, 1994) examination anxiety (Fan and Chan, 1997). A study on distance learning

revealed that social integration is significantly related to persistence (Sweets, 1986). Further, Kember (1995) suggested that students' persistence depends on the degree of their social and academic integration. A similar study conducted by Bajtelsmit (1998) revealed the importance of background, distance learning skills and academic support system for student persistence. Dissatisfaction with the course content or learning environment (Chyung, Winiecki and Fenner, 1998) and difficult content (Fan and Chan, 1997) have also been identified as important reasons for attrition.

In addition to above studies, Matheswaran (2010) has conducted a study, investigating reasons for dropouts in three universities; Madras University, Madurai Kamaraj University and Bharathidasan University. The reasons were analyzed on eight different dimensions; psychological-related factors, sociological-related factors, family-related factors, education-related factors, institution-related factors, employment-related factors, economics-related factors and health-related factors. The findings of this study revealed that family and economics-related factors were the main reasons for non-completion and health and social related factors have influenced at a lower rate. The researcher suggests the need to introduce a more user friendly model in distance education programmes.

Lekamge and Karunanayaka (2003), in their study to find out the factors affecting successful completion of Master of Education Program at the Open University of Sri Lanka have revealed that the main factors that contributed to the non – completion of the program were time constraints due to personal commitments and responsibilities of their occupations, restrictions in library referencing due to language problems, lack of facilities in remote areas and decrease of motivation due to various other reasons. De Zoysa (2009) in her study with the students of the same programme identified that lack of leave benefit is a major hindering factor for the completion of the programme.

Moreover, Dzakiria & Christopher (online, 2014) revealed that students who come from conventional form of education may find the transitional period of becoming an ODL student more challenging due to the problems in personal and school related experiences and other contributing factors such as financial costs of study, perceived irrelevance of their studies and lack of support from employers. These pressures often result in higher dropout rates than among traditional students. Thus, the previous studies revealed learner related factors, occupational related factors and program related factors have influenced on student non-completion.

## **Methodology**

The study was conducted to identify the background characteristics of the non-completed students, examine the factors affecting students' non-completion and to make recommendations to minimize student incompleteness in the CPE program. The survey method was used as the research method. Since the non-completed student population was nearly 2500, randomly selected 300 dropped-out students including students from Sinhala, Tamil and English media that selected from all Regional/Study Centers where the program is conducted were included in the sample. The major data collecting instrument was the questionnaire which consisted of both close ended and open ended questions. Ninety four (94) students responded to the questionnaire. Telephone interviews were carried out with a selected sub sample. Both quantitative and qualitative methods used for data analysis.

## **Results and Discussion**

Quantitative data collected through the questionnaire were tabulated and percentages were calculated. The quantitative data was triangulated with qualitative data collected through the questionnaire and the interviews.

### **Background Information**

The sample consisted of the students who have not completed the CPE programme. Majority of the sample were females (96%) with an extremely negligible male participation. Nearly 83% of them were in the age range, 17 to 35 years and only 2.22% of the respondents were over 50 years of age. Married female students were the majority (63%) in the sample. Around 71% were employed and of out them 53% are already employed full time as pre-school teachers. Approximately 43% of the sample has been registered at the Colombo Regional Centre, 30% at the Kandy Regional Centre and only 25% at other Regional Centers.

Majority (85%) of the sample falls into the Sinhala ethnic group and only 15% belong to the other ethnic groups, Tamil and Muslim. The low representation of the latter two ethnic groups is probably due to the lower population percentage and the program not being offered in Tamil medium in most of the centers.

The majority of non-completing students (60.7%) have indicated reasons for enrolling in the programme as to acquire knowledge and experiences "to run a Preschool or a Day-Care centre" Further, 49.4% of them stated that it was to ensure employment security they joined the programme. (The reason for this is, presently a valid qualification is needed to run a Preschool or a Day-Care centre in Sri Lanka.). Another reason given by them (38%) is that they believe the certificate they could obtain from the programme would help them to find job in a Preschool/Early Childhood Development Centre in Sri Lanka or in a foreign country.

## **Factors Related to Non-Completion**

### ***Distance from Residence to the Regional/Study Centers***

Findings revealed that 54% of the sample were residing more than 20 km away from their Regional /Study centers and that 17% were residing more than 15 km away from their respective Regional centers. Due to the long distance they had to travel, attending the Inaugural Sessions, Day Schools and submitting assignments time had been a problem for the students. Thus, the distance to OUSL Regional /Study centres from home could be identified as one of the predominant factors affecting students' successful completion.

### ***Personal & family related factors***

According to the background information, 71% of the sample were employed, 63% were married, 91% of them were females. In the Sri Lankan context married females hold most of the responsibilities of their family lives. These factors may have influenced them adversely in managing time to engage in their studies. It is noteworthy that 23 respondents (24%) had faced health problems when following the programme. Around 49% of the students stated that time factor was the major reason for their non-completion. Only 12% percent had faced financial problems. Interview data too revealed the other problems they faced (such as looking after old and ill parents, family commitments as young mothers and the responsibility in preparing meals for the family members) due to the above situations.

### ***Occupation Related Factors***

More than 71% of participants were engaged in an occupation and they were burdened with occupation-related commitments in addition to their family commitments. Hence again the time factor was very crucial for them.

### ***Program Related Factors***

#### ***Medium of instruction and Lesson Materials***

According to the data the majority of Sinhala students have enrolled in the Sinhala medium and same as in Tamil medium, there is no indication that the medium of instruction affected their non- completion.

Seventy-eight per cent of students had admitted that the “quality of course material was high” and “language is simple and understandable”. However, 23% of students had stated that the lesson materials are not attractive.

#### ***Day Schools and Assignments***

A majority of students (83% ) had mentioned that Day Schools were useful to them and they were satisfied with the manner (for example: arrangements of the day schools -

67%, number of dayschools-68%, motivation from academics -63%) and academic contribution (interaction- 60%, problem discussion-75%) the Day Schools were conducted.

Considering the responses to the ratings on “strongly agree and agree” (Table 2) more than three fourths (78%) of the sample have admitted that they are satisfied with the designing of the assignments, getting timely and good feedback for assignments and the motivation they received to engage in self-studies.

**Table 1:** Student Perception in Assignments

Student Perception	Strongly Agree		Agree		Can't say		Disagree		Strongly Disagree		No Response	
	No.	%	No	%	No	%	No	%	No	%	No	%
Assignments motivated to do self-studies	24	27.0	53	59.6	3	3.4	0	0.0	6	6.7	3	3.4
Assignments were well designed	19	21.3	55	61.8	4	4.5	2	2.2	0	0.0	9	10.1
No. of assignments given were sufficient	17	19.1	58	65.2	2	2.2	3	3.4	0	0.0	9	10.1
Received good feedback for assignments	23	25.8	47	52.8	5	5.6	3	3.4	2	2.2	9	10.1
Received back the marked assignments without delay	18	20.2	47	52.8	1	1.1	9	10.1	2	2.2	12	13.5

However, the percentages of responses to “strongly agree”, are considered it is not fair to conclude that students are highly satisfied with the assignment component. Further, the students inability to submit the assignment by due date was a problem they have faced during the programme.

### *Projects and Practical Teaching*

According to the findings, it is evident that students faced problems at different phases, such as getting guidance, when planning, collecting data and writing the projects. Their responses showed that they are not satisfied with the guidance provided by the supervisors during the projects. Further, 34% of the sample have not submitted the project.

Students need to engage in practical teaching at two stages. Majority of the sample has not completed the Stage 1 of the practical component, hence they were unable to complete the practical component.

## **Conclusions**

The major reasons for dropping out are personal and family related problems faced by the clientele. Multiple responsibilities of the role as a mother, wife, daughter and an income earner and personal reasons such as health problems, and death of a close relative had affected non-completion. These factors were directly relevant as most of the students were females and this can be a special reason for the existence of large number of drop outs in this programme. Due to these personal problems students had faced difficulties in managing time. Distance to the Study Centres also a contributing factor for their failure. In addition, inadequate guidance for the projects too can be identified as major reasons for drop out.

## **Recommendations**

- Other than printed materials student should be provide with multimedia materials relevant to the courses enabling the students to obtain learning experiences similar to Day Schools. Also online learning among students should be promoted.
- The quality of the assignment component should be further developed in order to further motivate the students to self-study the modules.
- Introduce efficient client oriented counseling procedure including - pre-counseling, continuous - counseling and post – counseling. These counseling sessions should include academic counseling, family counseling and psychological counseling to match the needs of the students.
- At the pre counseling sessions it is suggested to encourage students with greater family and personal commitments to register for a limited number of credits which they could manage for one academic year.
- Produce a module on Project in order to facilitate students in Projects, introduce more Activity Based Day Schools for the Project and make the Activity Based Day schools on the Project compulsory



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# **The impact of vicarious failure as a pedagogical strategy in modelling the behaviour of adult learners in open and distance learning**

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**Abstract:** Learning becomes effective when an appropriate blend of pedagogical strategies are used at both course and subject levels. In open and distance learning the concept of blended pedagogy has long been accepted. Here, face-to-face meetings in the blended pedagogy model remain as an important platform for teaching and learning. While there are many instructional techniques that are being employed in face-to-face meetings, there is an urgent need to understand the blended learning components and how opportunities can assist in developing an optimal pedagogy. This paper has investigated whether the vicarious failure (VF) instructional strategy, which is a form of vicarious learning (VL), enhances students' understanding on the subject matter in a face-to-face tutorial. Vicarious learning or also known as observational learning is defined as learning that occurs through appropriate observation or the analysis of other correct solutions. On the other hand, vicarious failure refers to learning from the failed problem-solving efforts of others. We are particularly interested to know if adult learners learn better by looking at failed problem-solving efforts of others. Can VF instructional design be used in tutorials that cater for adult learners resulting in fruitful learning outcomes? This paper reports on an initial study of a quasi-experimental that compares a VF instructional design classroom with a control group (known as the productive failure (PF) group). PF group generates failed solutions that are given to VF group. A total of 21 adult learners participated in the study. PF students generated solutions to a complex problem targeting one concept in programming (if-else selection concept) that they had not learned yet. VF students evaluated the solutions generated by PF students. Findings suggest that when learning the concept, adult learners model better from their own failed solutions rather than from those of others provided appropriate instruction on the targeted concept has been given after the generation or evaluation activity. The detail results are discussed in the paper.

Keywords: Adult Learners, Productive Failure, Vicarious Failure, Vicarious Learning

## **Introduction**

Face to Face (F2F) interaction is an important component in open and distance learning (ODL). When learning a new concept via F2F interaction, do adult students learn better from their own failed problem-solving efforts or from the failed problem-solving efforts of others? What is the discussion patterns when the adult learners solving the problem or when evaluating failed problem-solving efforts of others? How about the critical thinking when the adult learners solving the problem or when evaluating failed problem-solving efforts of others? In this paper we will examine these questions by focusing on productive and vicarious failures for an IT course.

## **Productive Failure**

Letting learners to persist, struggle, and even fail at tasks that are complex and beyond their skills and abilities may in fact be a productive exercise that will enhance their learning process later on as explained in the productive failure (PF) instructional design (Kapur, 2010). PF instructional design advocates the delaying of support for the learners during the learning process (Kapur, 2010). The more they struggle and even fail while trying to master new information, the better they are likely to recall and apply that information later (Kapur, 2010). This is supported by VanLehn et al.'s (2003) findings which suggest that it may well be more productive to delay that structure up until the student reaches an impasse or a form of failure. His research shows that there is a relationship between structure and failure which should be capitalized in the teaching and learning process by using the PF instructional strategy.

## **Vicarious Failure**

Vicarious failure (VF) refers to learning from the failed problem-solving efforts of others (Kapur, 2013). VF rooted from vicarious learning. Vicarious learning or also known as observational learning is defined as learning that occurs through appropriate observation or the analysis of other correct solutions. If PF is a design in which students have an opportunity to learn from their own failed solutions, then VF is a design in which students have an opportunity to learn from the failed solutions of their peers.

## **Purpose**

The purpose of this study was to design a productive failure instructional cycle for adult-based interactions in a face-to-face tutorial and compare it with a vicarious failure group. We wanted to determine if adult students learn better from their own failed problem-solving efforts or from the failed problem-solving efforts of others. To achieve this, two classroom-based, quasi-experimental studies with first-degree level adult learners were carried out; each study targeting a 2-hour tutorial class.

## **Method**

The research approach adopted for this study is discussed in the subsequent sections.

## **Participants**

Participants were  $n=21$ , second year adult learners enrolled in the Bachelor of Information Technology programme at Open University Malaysia (OUM). Students were from two programming classes (11 and 10 students respectively) taught by the same instructor with the average age of 33. The average-ability students were based on their prior knowledge on programming determined through a pre-test question during the first tutorial. Students had limited or no experiences with the targeted programming concept—`if` and `else` statement- prior to the study.

## Research Design

The proposed research design for this paper is adopted from Kapur (2010). The study was carried out as part of the regular curriculum time over the course of two hours. A quasi-experimental design was used with one class ( $n = 11$ ) assigned to the PF condition (control group) and the other class ( $n = 10$ ) assigned to the VF condition. Both classes participated in the same number of tutorial hours for the targeted concept totaling two hours of tutorial class for each of the groups. Thus, the amount of instructional time was held constant for the two conditions. Before the unit, all students wrote a 20-min, 4-item pre-test (Cronbach alpha = 0.82) as a measure of prior knowledge of the targeted concepts. There was no significant difference between the two conditions on the pre-test, with  $p = 0.675$ . At the end of their two-hour tutorial class, all students took a post-test (described later in the paper).

### Productive Failure (PF) Group

11 students were assigned to the PF group. The instructor had given the students the freedom to form their groups resulting in five groups (1 triad, 4 dyads). In the PF instructional design cycle, the groups' took 45 minutes to work face-to-face on the ill-structured problem. No extra support or scaffolds were provided during the group or individual problem-solving. One ill-structured problem scenario was developed for the concept on `if-else` selection. The problem in the task acts as a stimuli for the learning to take place and represent a platform for the learners to engage in the collaborative learning in their group. The following guidelines for the preparation of a good "ill-structured" question in the form of a task have been applied in order to ensure effective collaborative learning among the learners (Johnson & Johnson, 1994). They are:

- The task is conceptual
- The task requires problem solving approach
- The task requires higher-level reasoning and critical thinking
- The task emphasizes mastery
- The quality of performance is needed

The consolidation lecture was held towards the last 45-minutes of the class where the teacher led a discussion of the targeted concepts. One ill-structured problem scenario was developed for the concept on `if` and `else` statement.

### Vicarious Failure (VF) Group

10 students were assigned to the VF group. As in PF group, the instructor had given the students the freedom to form their groups resulting in five groups (5 dyads). The VF group were treated in the same way with the PF group as described earlier. However, the VF condition differed from the PF condition only in the first phase: The generation and exploration phase was replaced with a study and evaluate phase, in which instead of generating their own solutions students worked in small groups to study and evaluate solution generated by the PF group. One of the incorrect solutions from the PF group was randomly chosen and given to the VF for their evaluation with the following

prompt: “Evaluate whether this solution fulfils the questions requirement”. VF students then received the same consolidation and knowledge assembly as PF students (refer Table 1).

**Table 1** PF versus VF

<b>PF Group</b>	<b>VF Group</b>
Pre-Test	Pre-Test
<b>1<sup>st</sup> Phase</b>	
<b>45 minutes:</b> Generating solutions	<b>45 minutes:</b> Study and evaluate the solution provided by the PF group
<b>2<sup>nd</sup> Phase</b>	
<b>45 minutes:</b> Consolidation Lecture	<b>45 minutes:</b> Consolidation Lecture
<b>30 minutes:</b> Post-test	<b>30 minutes:</b> Post-test
<b>Total: 120 minutes (2 hours)</b>	

Immediately after phase 1, all students from PF and VF groups took a survey to report their engagement and mental effort in solving or evaluating the solution. All the learners from both of the groups were required to take a post-test after the consolidation lecture.

### **Data Sources and Analysis**

The data analysis procedures are described in this section. The problem solving process by the adult learners (for the both PF and VF groups) were analyzed using both process and outcome measures with quantitative means at the group and individual levels. Because the productive and vicarious failures rested heavily on the nature of group dynamics, a multipronged group-level analysis was undertaken using the following methods:

- i. Engagement and mental effort
- ii. The sequential patterns of the discussions
- iii. Critical thinking ratio (CTR)
- iv. The post-test result

The (i) and (ii) above are the process measures and the remaining (iii) and (iv) methods measure the groups’ and individuals’ outcomes respectively. We have audio taped the discussion of one randomly picked PF and VF groups respectively. The transcripts of these recorded discussions are analyzed in order to perform the sequential analysis and to calculate the CTR.

### **Results**

The results of this study are discussed in the subsequent sections.

## Group Solution by PF Group

Analysis of the groups' solutions of PF group suggested that all groups were able to come up with a solution but does not answer the problem's requirement. Based on the analysis done by the instructor, no group submitted an acceptable solution.

## Engagement and Mental Effort Ratings

Immediately after generating the solution (for PF group) and evaluating the solution (for VF group), all students individually took a five-item, 5-point (*strongly disagree* to *strongly agree*) Likert scale engagement survey and individually reported their amount of mental effort using a 9-point rating scale developed by Paas (1992). PF group reported higher engagement and mental effort in solving the problem compared to the VF group as indicated in the table below. However, the difference between these groups (for the both engagement and mental effort) were not significant at  $p < 0.05$  using the non-parametric Whitney-Mann test.

**Table 2** Individual engagement and mental effort ratings

	<b>Engagement Survey</b> (Maximum score: 5)	<b>Mental Effort Rating</b> (Maximum score: 9)
PF Learners	4.55	7.64
VF Learners	4.34	6.28

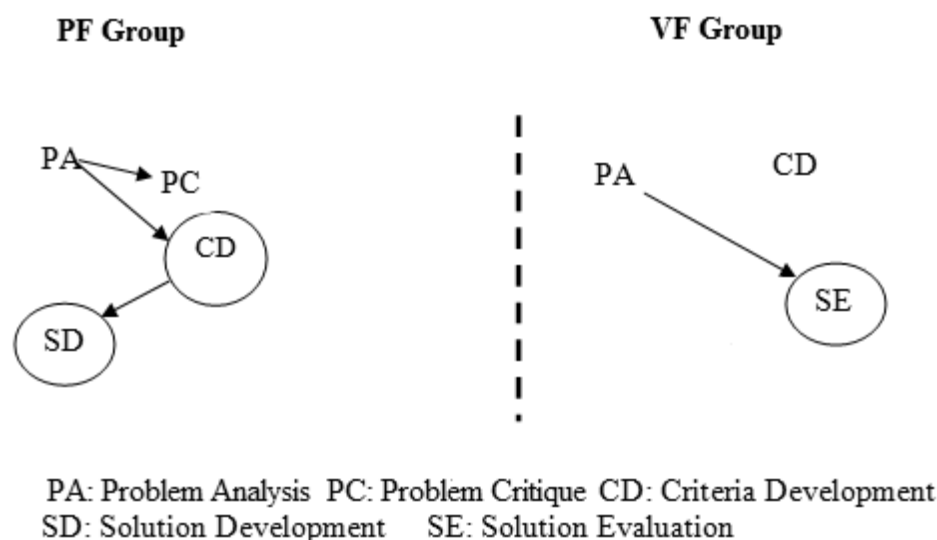
## Sequential Analysis

It is interesting to investigate the patterns of discussions of the PF and VF groups. This can be done using the sequential analysis technique. Sequential analysis is a technique used to detect such patterns—treats each interactional unit as an observation; a coded sequence of these observations forming the problem-solving sequence of a group discussion (Erkens et al., 2003). It detects the various non-random aspects of interactional sequences to reveal how certain types of interactions follow others more often than what one would expect by chance (Wampold, 1992). It accomplishes this by identifying statistically significant transitions from one type of interactional activity to another (Bakeman & Gottman, 1997; Wampold, 1992). In order to perform the sequential analysis, we have used lag-sequential analysis (LSA) tool known as Multiple Episode Protocol Analysis (MEPA) developed by Dr Gijsbert Erkens (<http://edugate.fss.uu.nl/mepa>). In this study, we have adopted Functional Category System (FCS)—an interaction coding scheme developed by Poole and Holmes (1995) as the indicators for LSA. In FCS, every utterance was segmented into one or more interaction unit(s), and coded into categories as shown below:

- Problem Analysis (PA): Statements that define or state the causes behind a problem “I think I must declare the variable here”);
- Problem Critique (PC): Statements that evaluate problem analysis statements (e.g., “how can you be sure that the variable must be declared here”);

- Orientation (OO): Statements that attempts to orient or guide the group's process, (e.g., "let's take turns giving our ideas");
- Criteria Development (CD): Statements that concern criteria for decision making (e.g., "we need to plan the class program first");
- Solution Development (SD): Suggestions of alternatives, ideas, proposals for solving the problem (e.g., "use the second approach to solve the problem");
- Solution Evaluation (SE): Statements that evaluate alternatives and give reasons explicit or implicit, for the evaluations (e.g., "yes, but how do we know that there should be three methods");
- Non-Task (NT): Statements that do not have anything to do with the decision task. (e.g., "why not we continue tomorrow!").

All these categories are used in the sequential analysis using MEPA. We have excluded Non-Task (NT) messages in the transcript analysis such as social-oriented postings as well as other discussion messages that do not convey clear meanings or directions. As the analysis of these recorded discussions are tedious and time consuming, we have analysed only one randomly chosen PF and VF groups respectively. The results of LSA using MEPA are given below.



**Figure 1** Likely sequential patterns in PF and VF groups

In Figure 1, a circled category means that groups in that condition were at least twice as likely to sustain that type of activity in a coherent cluster rather than be spread throughout the discussion. It can be concluded from the Figure 1 that PF group had a focused discussion on criteria development and solution development with problem analysis and problem critique are spread throughout the discussion. This group is also likely to have PA-PC and a perfect PA-CD-SD interactional sequences. On the other hand, the VF group only touches on three components, namely problem analysis, criteria development and solution evaluation and with the only solution evaluation having a focused discussion. This group is also likely to have only PA-SE interactional sequence.



### Critical Thinking Ratio (CTR)

One of the objectives of this paper is to quantify critical thinking ratio of the group's discussion. In order to do so, we have followed the Newman content analysis model. The theoretical concepts that support the instrument of Newman et al. (1995) are group learning, deep learning, and critical thinking. Newman et al. (1995) argued that there is a clear link between critical thinking, social interaction, and deep learning. They developed a content analysis instrument based on Garrison's (1991) five stages of critical thinking. They identify 10 categories: relevance, importance, novelty, outside knowledge, ambiguities, linking ideas, justification, critical assessment, practical utility, and width of understanding. For each category a number of positive and negative indicators are formulated and most indicators are fairly obvious opposites (Newman et al., 1995).

Newman et al. (1995) adopt themes as the unit of analysis and can be used in domain-specific discussions such as programming. The units may be phrases, sentences, paragraphs or messages illustrating at least one of the indicators. They only mark and count the obvious examples, and ignore less clear indicators (Newman et al., 1995). The formula used to calculate the CTR is given below:

$$\text{CTR} = (x+ - x-) \div (x+ + x-)$$

$x+$ : is the count of statements contributing to critical thinking for the coding category

$x-$ : is the count of statements detracting from critical thinking for the category.

The minimum value of CTR is -1 (all uncritical thinking, all surface-level learning) and a maximum of +1 (all critical thinking, all deep-level learning) (Newman et al., 1995). Overall critical thinking ratio can be calculated by counting all the positive and negative postings in the forum and then apply the above formula. We have analyzed the same groups used in the sequential analysis (i.e. one randomly chosen PF and VF groups respectively). The overall critical thinking ratio calculated based for these groups is given below in Table 3.

**Table 3** Overall CTR of the groups

<b>PF Group</b>	<b>VF group</b>
0.77	0.63

The result shows that both groups are having commendable critical thinking ratios. However, the PF group is having higher CTR as compared to the VF group.

## Post-test Result

The post-test targeted content/concept (i.e. if-else selection structure) covered during the 2-hours tutorial for the both PF and VF groups. Students from both the PF and VF classes were given 30 minutes to complete a 5-item post-test (Cronbach alpha = 0.76) comprising four well-structured knowledge-based problem items (in the form of multiple choice questions) similar (not same) to those on the pre-test as well as one item on higher-order application-based problem. Students need to write a brief program codes for this high-order application-based question. The result of the post-test is given in the following table.

**Table 4** Post-test results

Question Type	Post-test Results	
	PF Students ( <i>n</i> =11)	VF Students ( <i>n</i> =10)
Knowledge (Maximum score: 10)	6.64	3.67
Application (Maximum score: 4)	2.68	1.33
<b>Overall</b> (Maximum score: 14)	<b>9.32</b>	<b>5.00</b>

Adult learners from the PF group have higher mean score for the both knowledge and application based questions. Overall, the PF group has higher mean score compared to the VF group and the difference is significance at  $p < 0.05$  using the non-parametric Whitney-Mann test.

## Discussion

This study was designed to compare a productive failure instructional design to a vicarious failure group. We are particularly interested to know if adult learners learn better by looking at failed problem-solving efforts of others or solving it on their own. Conclusions from the study suggest that despite seemingly failing in their collective effort, students from the productive failure condition significantly outperformed their counterparts from VF group on the targeted concept in the post-test. The students from the PF group also have various scopes in their discussion compared to the VF group (as highlighted in the sequential analysis) and higher CTR. It means adult learners performed better when they persist in problem-solving activity by solving the problem on their own even with a failed solution provided appropriate instruction on the targeted concept has been given after the solution generation activity.

The productive failure instructional design has enabled the adult learners to generate and develop their own structure such as concepts and method or approach for solving the complex problems (Kapur, 2010). The process of generating a diverse set of structures while exploring the problem and solution spaces may have increased sufficient knowledge differentiation even though it did not result in a successful solution

(Kapur, 2013). Such knowledge differentiation was critical for learning because it prepared students to better discern and understand those very concepts, representation, and methods when presented in a well-assembled, structured form during the consolidation lecture (Gibson and Gibson, 1955; Marton, 2007). Generation of the solutions by the students themselves may be the better approach because the students who generate may better understand the affordances and limitations of their own solution than those who evaluate the given solution. The process of generating solutions helps students attend to the deep structure or critical features of the solution better than if they did not generate them. Thus, students who generate the solutions on their own may be better prepared to learn from the consolidation and knowledge assembly phase.

### **Implications of the Study**

Though it is difficult to draw implications from one study; what more with a small sample, we believe the findings from this study do lead to some broader ramifications. We have identified some broad implications that can be concluded from this study in the context of open and distance learning.

In the context of adult learners who consist of the majority partaking open and distance learning, their key characteristics are that they are self-directed, have a problem-centred orientation to learning with life experiences as a rich resource for learning. However the open and distance education courses are based on the tenets of learning and usually characterized by a strong structure which students follow through a predetermined sequence of learning activities. The cost of producing the distance education learning materials involves high up-front costs and can only be justified if it serves a large number of students over the years. Thus the individualized approach to the adult learners may not be possible.

However as most open and distance learning institutions have done, they provide a quality and holistic learning environment to its learners through its blended pedagogy methodology that incorporates the e-learning aspects, distance education and traditional learning through self-managed learning, online learning, and face-to-face interaction.

Learners, as they are called, instead of students, are expected to self-manage their learning, that is, at their own pace. The learning environment comprises the self-study segment using specially designed open and distance modules and courseware, the face-to-face tutorials with the tutors at the learning centres biweekly and online interaction 24 hours seven days a week via the learning management platform. The open and distance learning provides opportunities for working adults to further their study without having to leave their jobs. With the assistance of the learning platform, learners also are more flexible in undergoing their course of study regardless of where they are when they are not attending tutorial sessions.

During these face-to-face sessions, different pedagogical strategies can be used as served in this case study which looked at productive failure and vicarious learning. In this study, the PF group expectedly struggled with defining, analyzing and solving the problems compared to their counterparts who looked to study and evaluate solution generated by the PF group. An integral proposition of this perspective is that learners

need to be engaged in solving authentic, ill-structured problems for deep learning to take place. As ill-structured problems tend to be complex and often beyond the existing knowledge and skills of learners, a certain amount of support structures, scaffolds or consolidation lecturer need to be provided after the non-scaffold group discussion.

## Summary

Definitely it is too early to attempt broad generalization of the claims based on a single study. However, this study, essentially, presents an evident proof that adult learners learn better from their own failed problem-solving efforts. The research was done with a limited, small sample and to draw generalizations from it might seem overwhelming. However it is pertinent to realise that this research can be extended to more learners in the ODL mode to draw a concrete conclusion on the positive nature asking the learners to solve the problems on their own with no scaffolding provided.

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# **An analysis of online learning behaviour from a tutor perspectives: Reflections on interactive teaching and learning in the big data era**

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## **ABSTRACT**

In China, the field of education has been deployed a large number of learning management systems in which vast amounts of information on learners and learning process data has been stored. How to make use of these data? How to transform the data into information and knowledge so as to inform teaching decision-making and learning optimization? All these have become the concerns of educators and learners. Learning analytics helps unlock the value of the learning process data, so that the data could become an important basis for prudent decisions and process optimization. “Learning analytics” was listed in “2013 NMC Horizon Report (Higher Education Edition)” as one of the emerging technologies that will have great impact on higher education in the field of learning, teaching and innovative research in two to three years. The report notes that learning analytics aims to decipher trends and patterns in teaching and learning process from educational big data. In this paper, an online course based on Moodle platform is selected for the research sampling. The study is conducted into reflections on online teaching and learning based on massive learning process records from the perspective of a tutor employing learning analytics. It is such a brand new form of reflections on teaching and learning. The analysis on interactive course forums can help tutors focus on key teaching and learning activities, and achieve a more accurate analysis in contrast with face-to-face teaching activities. Research indicates that learning analytics is effective in supporting tutor’s reflections on interactive online teaching and learning.

## **Keywords**

big data, learning analytics, data mining, online learning, online tutor, teaching reflections

## **1. Introduction**

Since 2011, the rapid development of MOOCs (massive open online courses) by the top universities in the United States has undoubtedly set a good example of “online learning”. This model proves that online learning cannot be effective until the university curriculum, classroom teaching, learning process, students’ experiences, and teacher-student interaction process are completed as a system online(Li, M., Zhang Y. & Huang, Z., 2013.), and in particular the support by tutors and related guiding activities are achieved. It also indicates that online learning is not purely autonomous learning, but requires giving full play to the leading role of tutors.

In online learning, teacher-student activities are relatively separated in time and space, despite synchronous teaching activities, but more often there are asynchronous teaching activities as asynchronous teaching better help meet the personalized learning needs of learners. It is difficult for teachers to grasp the whole picture of learners’ development situation in an online course compared with face-to-face classroom teaching. However, it is possible for teachers to learn more about the process of teaching through the learning process records on an online learning platform, and it is necessary to reflect on the learning process records for the continuous enhancement of online teaching.

## 2. Literature Review

“Teaching reflection”, as the name suggests, the object to reflect on is the teaching process, and the basis of reflection is a faithful record of the teaching process.

Poser (1989) proposed a formula for teacher growth by combining the growth and development of teachers and their reflections on their own experiences: Experience + Reflection = growth. It indicates the importance reflections on the growth and professional development of teachers.

Wang Y. and Zhao X. (2006) point out that teaching reflection refers to such a positive cognitive process of teachers’ dialectical negation of their teaching philosophy, teaching experience, and teaching behavior through teaching introspection, teaching experiences, and teaching monitoring, etc. It aims to improve teaching. The reason why teaching reflection is attached importance lies in the requirements of improving teachers’ job performance, transforming to professional teacher education and rationalized teacher training.

In recent years, the rise of learning analytics is considered a powerful learning tool for teachers in online teaching reflection. Learning analytics deciphers massive amounts of data generated in learning process. It will help assess students’ academic progress, predict their future performance, and identify potential problems (Johnson, L., Adams, S., & Cummins, M., 2012). For teachers, learning analytics can be used to carry out more in-depth analysis of teaching process so as to provide more targeted teaching intervention; for students on the basis of data analysis (Chen, E., Heritage, M. & Lee, J., 2010). In online learning, an online learning platform keeps detailed records of students’ behavior like classroom teaching videos. With learning analytics, data analysis of the behavior of teachers and students can help reproduce online learning process, so that teachers could grasp the whole picture of the online teaching process and understand every aspect of teaching, important teaching and learning activities as well as the details of all students. Thus, the original vague impression will be digitalized and clarified, and teachers will be assisted in reflecting on the advantages and disadvantages of their teaching design, resource production, learning guide, and learning assessment.

A Moodle-based online course is selected as a sample. Studies are conducted into online teaching reflection based on records of learning process from a tutor’s perspectives. By learning from the practice of dealing with data of Moodle by Romero, C., Ventura, S., & Garcia, E. (2005), the research employs learning analytics specifically including analysis techniques of discourse analysis and social network analysis, data mining methods of statistical analysis and visualization, clustering, forecasting, relationship mining and text mining, and tools of SQL SERVER 2005 Analysis Service (SSAS), SPSS, UCINET, EXCEL, ICTCLAS (Chinese word segmentation system) (Wei, S., 2013), to conduct online teaching reflection on records of the learning process from the perspectives of a tutor, exploring a new form of teaching reflection. It is such a brand new form of reflection on teaching and learning.

### 3. Research Sample

The paper selects a training class for online education practitioners as research subjects. The training project, organized by the Open University of China (OUC) (the former China Central Radio and TV University) is based on OUC Moodle platform (website: <http://etutor.crtvu.cn>). Three pure-online(Han, Y., 2011) courses are provided for the training project: “*Student Support*”, “*Tutoring Online*” and “*Online Course Design*”<sup>\*</sup> Each course lasts for six weeks, and students carry out online learning through Moodle with tutor’s tutoring online all the way. The paper specifically chooses the fifth class of the course “*Tutoring Online*” as samples.

The fifth class of “*Tutoring Online*” consists of 23 teacher-as-learners and one tutor. All the learners are from the local radio and TV universities. A prominent feature is that different groups are from different radio and TV universities. In terms of the age structure, 80% of them were born in 1970s, who are precisely the backbones of the system of radio and TV universities. The training started on May 3, 2011 and ended on June 12, 2011 covering six weeks except the time for summative paper writing. Collection of the training data takes longer than the training itself, i.e. from March 1, 2011 to December 31, 2011. Han Yanhui, the first author, is the tutor of the training class. Han has been engaged in distance education and online learning for over ten years and has accumulated a wealth of experience in teaching online.

It should be noted that in the course “*Tutoring Online*” there is only one teacher –tutor who carries out all responsibilities and roles of teaching/tutoring. The tutor is Han Yanhui. Learners of the course are in-service teachers, so in the paper they are called teacher-as-learners.

### 4. Data Analysis and Reflections on Training

The log data table on Moodle (data table named as mdl\_log) records visited platform modules, various operations and time of the behaviour of every user. Using the log data tables and other private data tables, statistical and cluster analysis can be conducted into the overall situation of visited platform modules, visited platform modules and various operations of students and teachers, and characteristics of time of student’s access to platform. Then visual representation of results of the analysis can be achieved. On this basis, discussions and reflections are carried out on the course “*Tutoring Online*” itself and how the fifth training class works.

Discussions by students and tutor in forums can be regarded as a key teaching activity for such inquiry learning based on discussions. Through the activity, related teaching information is delivered, a variety of other teaching activities are carried out, and the curriculum knowledge are constantly presented here with learning support service offered. Therefore, the authors focus on analysis on interactive forums, including “structure of interactions”, “quantity and content of interactions” and “dynamic process of interactions”.

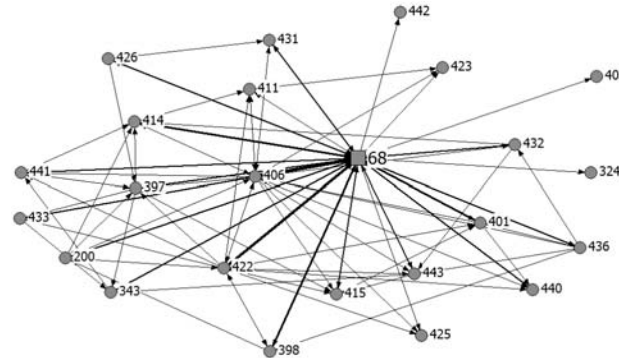
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<sup>\*</sup> The three online courses were co-developed by the Open University of China and the Open University UK in 2008 targeting online education practitioners. Up to May 2013, the enrollments reached 1468 and learners are from 20 e-colleges of conventional universities, 56 local radio and TV universities, and 10 corporate e-learning institutions.



#### 4.1 Structure: Network of Interactions between Tutor and Learners (NITL)

The figure of learner-tutor interactive network is drawn below based on relations between posting and replying by learners and tutor using the UCINET social network analysis tool. As shown in the figure, all 24 members (including the tutor, as the square node No. 68) are in one network, and there exists no isolated member.



**Figure 1 The network of interactions between learners and tutor**

In UCINET, the density analysis along Networks-Cohesion-Density-Density indicates that the density is 0.97, almost equal to 1. It represents each member responded to all the other members once and received one reply from all other members.

Centrality is the number of other nodes linked directly to a node in a network figure. Centrality reflects the authority and influence of a node in the network. The node with higher centrality stays at the heart of network, and can effectively control and influence the activities between other actors; on the contrary, the node with lower centrality is marginalized, it rarely participates in interactive communication with very little impact on other nodes.

In UCINET, the centrality analysis along Networks-Centrality-Degree (“Treat data as symmetric” select “NO”, i.e., asymmetric network) implies that ( as shown in Table 1 ) the member with highest OutDegree is the Tutor No. 68. It indicates that the Tutor is the primary participant of the community. According to the NrmOutDeg(relative OutDegree) and NrmInDeg(relative InDegree) analysis, the NrmOutDeg and NrmInDeg of seven members (including the tutor ) No. 68, 406, 422, 414, 200, 401 and 432 is more than 1. It shows that the OutDegree and InDegree of all the seven members are more than the maximum possible degree of the node in the figure, i.e., these members replied to half members of the network, and got replies from half members. The seven members act as opinion leaders of the community. According to teaching practice, analysis of the centrality in the figure of interactive learner-tutor network is accurate. Members No. 406, 422, 414, 200, 401 and 432 are indeed more active in the fifth training class. They not only have their own ideas, speak up, and are more influential with more replies following their threads. Meanwhile, they made more replies to other learners. Therefore, their NrmOutDeg and NrmInDeg in the figure are relatively higher. Among them, the member No. 406 is the most active. Although she is an elder learner, she is particularly pushy and fruitful in teaching and academic research, so it is natural for her to become second only to the Tutor as an opinion leader. It is precisely because of her outstanding performance, the enthusiasm of other learners was driven, and she played a supporting role to the Tutor to some extent. Therefore, in online teaching and learning, we should

be good at discovering and guiding such opinion leaders among learners. It will be very helpful for further development of learning and discussions.

**Table 1 OutDegree and InDegree of Learners in NITL**

Order	Learner No.	OutDegree	InDegree	NrmOutDeg	NrmInDeg
1.	68 (Tutor)	297.000	143.000	30.030	14.459
2.	406	56.000	65.000	5.662	6.572
3.	422	51.000	45.000	5.157	4.550
4.	414	23.000	35.000	2.326	3.539
5.	200	16.000	20.000	1.618	2.022
6.	401	16.000	20.000	1.618	2.022
7.	432	11.000	17.000	1.112	1.719
8.	398	9.000	23.000	0.910	2.326
9.	436	8.000	11.000	0.809	1.112
10.	443	8.000	16.000	0.809	1.618
11.	411	6.000	8.000	0.607	0.809
12.	431	6.000	10.000	0.607	1.011
13.	441	6.000	13.000	0.607	1.314
14.	397	5.000	16.000	0.506	1.618
15.	426	5.000	12.000	0.506	1.213
16.	343	4.000	11.000	0.404	1.112
17.	415	3.000	20.000	0.303	2.022
18.	433	3.000	13.000	0.303	1.314
19.	440	2.000	12.000	0.202	1.213
20.	324	1.000	5.000	0.101	0.506
21.	423	0.000	7.000	0.000	0.708
22.	403	0.000	4.000	0.000	0.404
23.	442	0.000	1.000	0.000	0.101
24.	425	0.000	9.000	0.000	0.910

Betweenness Centrality measures a person's capacity as a medium. The higher his betweenness centrality is, the more people are in contact through him. In UCINET, the betweenness centrality analysis along Networks-Centrality-Freeman Betweenness-Node indicates that the Tutor's betweenness centrality is the highest, and the betweenness centrality of teacher-as-learners is significantly lower than that of the Tutor (as shown in Table 2). It suggests that the Tutor not only acted as a "leader" in the interactive learners-tutor network, but also carried out the important role of "betweenness" actively coordinating communication between different members of the community. A few learners like No. 422, 397, 414, 401 and 443 also played the role of "betweenness" to certain extent. Comparison between Table 1 and Table 2 implies that although the OutDegree and InDegree of two members No. 397 and 443 are not high, the betweenness centrality of them is excellent, which shows that more members can establish contacts through them.

**Table 2 Betweenness Centrality of learners in NITL**

Order	Learner No.	Betweenness	nBetweenness
1.	68 (Tutor)	282.283	55.787
2.	406	41.283	8.159
3.	422	12.083	2.388
4.	397	5.200	1.028
5.	414	2.583	0.511
6.	401	2.333	0.461
7.	443	2.083	0.412
8.	343	1.500	0.296
9.	200	1.367	0.270
10.	415	1.333	0.264
11.	441	1.200	0.237
12.	398	0.750	0.148
13.	411	0.667	0.132
14.	431	0.500	0.099
15.	433	0.500	0.099
16.	432	0.333	0.066
17.	403	0.000	0.000
18.	423	0.000	0.000
19.	324	0.000	0.000
20.	436	0.000	0.000
21.	425	0.000	0.000
22.	426	0.000	0.000
23.	442	0.000	0.000
24.	440	0.000	0.000

#### 4.2 Quantity and Content of Interactions between Tutor and Learners

Discussion activities of the course cover all six learning units. Threads of the class total 743 among which there are 727 threads in Chinese and 16 ones in English. It indicates that bilingual teaching exists, there are 4 teacher-as-learners participated in discussions in English. It is not easy for them to post messages in English, while they have such great enthusiasm, which deserves more encouragement especially.

In terms of age structure, younger learners are more enthusiastic in discussion activities. However, the performance of a learner born in 1960s is outstanding. She has both a wealth of teaching practice and strong research capabilities, and shows significant impact in discussions. In addition, an opinion leader born in 1970s contributed longer threads with strong academic flavor and profound insights. These salient features of the training class are different from those of the previous classes.

Next, interactions between tutor and learners in the training class will be analyzed through the quantity and content of interactions.

4.2.1 Quantity of Interactive Threads by Tutor and Learners  
The general situation of the Forum is shown in Table 3.

**Table 3 General Situation of the Forum**

Unit Order <sup>↕</sup>	Unit <sup>↕</sup>	Planned Teaching Time <sup>↕</sup>	Participants <sup>↕</sup>	Topics <sup>↕</sup>	Threads <sup>↕</sup> (Including Tutor's) <sup>↕</sup>	Characters of Threads <sup>↕</sup> (Including Tutor's) <sup>↕</sup>	Replies <sup>↕</sup> To Each Topic <sup>↕</sup>	Average <sup>↕</sup> Words of Each <sup>↕</sup> Thread <sup>↕</sup>
u0 <sup>↕</sup>	Course guide <sup>↕</sup>	Week 1 <sup>↕</sup>	22 <sup>↕</sup>	38 <sup>↕</sup>	199 <sup>↕</sup> (Tutor's 47%) <sup>↕</sup>	24871 (Tutor's 45%) <sup>↕</sup>	5.2 <sup>↕</sup>	125 <sup>↕</sup>
u1 <sup>↕</sup>	What is tutoring online? <sup>↕</sup>	Week 2 <sup>↕</sup>	24 <sup>↕</sup>	41 <sup>↕</sup>	134 <sup>↕</sup> (Tutor's 47%) <sup>↕</sup>	36036 (Tutor's 19%) <sup>↕</sup>	3.3 <sup>↕</sup>	269 <sup>↕</sup>
u2 <sup>↕</sup>	Managing time <sup>↕</sup>	Week 3 <sup>↕</sup>	20 <sup>↕</sup>	21 <sup>↕</sup>	107 <sup>↕</sup> (Tutor's 41%) <sup>↕</sup>	36218 (Tutor's 32%) <sup>↕</sup>	5.1 <sup>↕</sup>	338 <sup>↕</sup>
u3 <sup>↕</sup>	Roles of tutors <sup>↕</sup>	Week 4 <sup>↕</sup>	20 <sup>↕</sup>	14 <sup>↕</sup>	72(Tutor's 33%) <sup>↕</sup>	22149 (Tutor's 18%) <sup>↕</sup>	5.1 <sup>↕</sup>	308 <sup>↕</sup>
u4 <sup>↕</sup>	Establishing tutoring styles <sup>↕</sup>	Week 5 <sup>↕</sup>	23 <sup>↕</sup>	27 <sup>↕</sup>	94(Tutor's 42%) <sup>↕</sup>	37118 (Tutor's 17%) <sup>↕</sup>	3.5 <sup>↕</sup>	395 <sup>↕</sup>
u5 <sup>↕</sup>	Dealing with difficulties <sup>↕</sup>	Week 6 <sup>↕</sup>	21 <sup>↕</sup>	24 <sup>↕</sup>	80(Tutor's 40%) <sup>↕</sup>	19671 (Tutor's 27%) <sup>↕</sup>	3.3 <sup>↕</sup>	246 <sup>↕</sup>
u6 <sup>↕</sup>	Paper writing <sup>↕</sup>	Week 7, 8, 9 <sup>↕</sup>	17 <sup>↕</sup>	19 <sup>↕</sup>	56(Tutor's 39%) <sup>↕</sup>	11321 (Tutor's 40%) <sup>↕</sup>	2.9 <sup>↕</sup>	202 <sup>↕</sup>
Total <sup>↕</sup>		↕	↕	184 <sup>↕</sup>	742 <sup>↕</sup> (Tutor's 321, 43%) <sup>↕</sup>	187384 <sup>↕</sup>	↕	↕

Table 3 shows the slow downward trend of the amount of Tutor's threads. In the first two weeks, Week 1 "Course Guide" and Week 2 "What is tutoring online", the Tutor contributes relatively more time to guiding learners' discussions since it is at the beginning phase of online teaching. Starting from the third week, the data show that the amount of the Tutor's threads begins to decrease from nearly 50% to around 40%. This is because, after the first two weeks' study, teacher-as-learners maintain a high motivation due to the effective guiding by the Tutor. The effect is obvious. From the beginning of the third week, the Tutor intentionally reduces the amount of threads paying attention to sparing more time for teacher-as-learners' thinking and discussing. Teacher-as-learners begin to switch themselves to the leading role of discussions. It proves the success of the Tutor's grasp and control of discussions.

It is because of the Tutor's excellent controlling and tutoring capacities, teacher-as-learners have always maintained great enthusiasm and initiatives for learning. From the first week to the end of the sixth week, the number of participants has been kept over 20; the participation rate is very high.

**Table 4 Length of Threads by Teacher-as-learners**

Words	Threads	Cumulative Percentage ( Total threads 415 )
0~99	178	43%
100+	60	57%
200+	40	67%
300+	41	77%
400+	17	81%
500+	19	86%
600+	11	88%
700+	12	91%
800+	3	92%
900+	4	93%
1000+	30	100%

Table 4 shows that 77% of teacher-as-learners' threads are within 300 words, and 23% of threads are more than 300 words, while nearly half of threads are more than 100 words. The quantitative distribution of these threads implies the large amount of text indicating that students are willing to participate in the discussion and have their own points of view. In terms of quality of the threads, the quality of most teacher-as-learners' threads is relatively high with more in-depth discussion on topics. In particular, nearly 1/4 of their threads are more than 300 words implying the in-depth of their discussions, which represents the most active teacher-as-learners with their own ideas. Meanwhile, nearly half of the threads are more than 100 words reflecting the situation of most teacher-as-learners' posting and discussions. Their level of participation is relatively high, and they can express certain ideas representing the average level of teacher-as-learners. It proves the high quality of discussions, high academic level of learners, and reasonable length distribution of forum threads in the fifth class.

#### 4.2.2 Tutor's Art of Language and Tutoring Specialties in Interactive Forums

The authors use ICTCLAS (Chinese word segmentation system) for segmentation of content text of each unit's threads, and then count up the frequency of use (FU) of common words from segmentation (including notional words such as verbs and nouns, excluding function words and terms) in order to reflect the art of language and tutoring specialties of the Tutor. The top ten common words by FU are shown in Table 5.

**Table 5 Top 10 Words and their order in units**

<b>Order</b> <b>Words</b>	<b>U0</b>	<b>U1</b>	<b>U2</b>	<b>U3</b>	<b>U4</b>	<b>U5</b>	<b>U6</b>	<b>FU</b>
Classmate	1	1	1	1	1	1	3	448
Com on	2	3	6	3	6	5	4	193
Student	38	5	2	5	2	2	28	166
Thanks	8	2	18	2	5	4	6	158
You can	6	6	11	71	4	8	2	144
Learn(ing)	3	6	7	8	8	12	119	126
Question	38	4	4		10	3	10	121
Course	5	31	11	15	7	72	16	88
Research	30	172	93	71	169	9	1	78
Discuss(ion)	30	9	3	10	58		119	76

The top 10 common words and their order in each unit show that the FU of “classmate”, “student”, “you can” and “learn(ing)” reaches nearly 900 times. Such a frequency is very high, and the words rank higher in each unit. The FU of “classmate”, the noun which can be used as salutation in Chinese, totals as high as 448 times reflecting the Tutor’s love to learners. He does not regard himself as a teacher, but considers himself a “classmate” learning with all learners, which largely narrows the psychological distance between the Tutor and learners. The FU of the noun “learner” is relatively high. It is inseparable from Han Yanhui, the Tutor’s philosophy of “serve learners heart and soul”, i.e., all are learner-centered exploring and solving a variety of problems of learners. Then the high FU of “learn(ing)” is easy to understand. “You can” is actually also learner-centered encouraging them to express their views and giving them various suggestions to guide their thinking. It is thus evident that the high FU of these four words reflects Han’s philosophy of “serve learners heart and soul”.

Both the FU and rank order of “come on” and “thanks” are prominent, which can be interpreted from the perspective of affective support. It is Han’s philosophy of “serve learners heart and soul” that keeps him encouraging and supporting idea expressing and progress making of each learner. No matter learners’ idea expressing is wonderful or not, no matter Han agrees with them or not, he always expresses his gratitude through “come on” or “thanks”. Thus, from the beginning to the end, the learners keep feeling a psychological comfort and warmth. Han gives them continuing affective support to help them complete the study. It can be seen as Han’s prominent art of language.

The use of “question”, “course”, “research” and “discussion” is also prominent. It can be regarded as the grasp of discussions on academic issues and academic research. Han focuses on “course” and academic “research” guiding learners to explore “question” and develop the “discussion”. He not only explores into teaching, but also seeks the sublimation of theory from the point view of “research”. It is precisely the problem to be solved in the course, which reflects his accurate grasp of course content, discussions and research methods by achieving unity of teaching and research. It can be seen as a feature of his tutoring online.

### 4.2.3 Use of Terms

About 240 terms are extracted from the threads by terminology extraction algorithms developed by Fu Qian, Wei Shunping et al. (2008). The FU of these terms totals 4909 times including 976 times by the Tutor accounting for about 20%; these terms appear in 481 threads, including 204 Tutor's threads accounting for 65% of the total. On the other hand, no terms are used in about 1/3 threads. Thus, the main function of the forum is to discuss curriculum knowledge, and the secondary function is to stimulate and sustain the motivation of teacher-as-learners, and to guide and encourage learners to keep participating in the study.

Terms with not less than 10 times of FU are shown in Table 6.

**Table 1 High FU terms of forums**

tutor in Chinese(340), dianda(330), online learning(218), open education(200), online tutor(176), distance education(114), network teaching(114), open university(112), tutoring online(89), learner(88), Welcome(84), CRTVU(76), local dianda(65), autonomous learning(62), threads(58), online learning(51), teaching activities(48), online teaching(48), learning guide(47), tutoring for online learning(43), student's learning(41), open and distance education(41), online teaching(40), radio and TV universities(39), go online for learning(39), learning methods(38), learning process(38), posting message(35), way of learning(34), tutors of open education(33), study guide for open education(32), open education of dianda(31), CRTVU-Online(31), the Open University of China(28), formative assessment(28), research methods(28), conflicts between work and study (27), teaching content(27), teaching resources(27), courseware(27), learning environment(27), learning content(27), total score(27), China Central Radio and TV University(26), facilitator(25), teaching process(25), f2f tutorial(25), f2f class(24), teaching quality(23), guiding students(23), assistant lecturer(23), teaching mode(22), course studying(22), online interaction(22), dissertation(21), open English(21), WIKI(20), traditional teaching(20), dianda system(20), learning resources(20), supporting service(20), way of teaching(19), learning activities(19), online education(19), teaching effect(18), f2f teaching(18), network tech(18), study time(18), instructor(18), network education(17), network resources(17), students' assignments(17), online course(17), online platform(17), teaching platform(16), solve problems(16), three-level platforms(16), conditions for surfing the Internet(16), forms of learning(16), course expert(15), distance teaching(15), tutor(14), stimulate students(14), network platform(14), academic research(14), study tasks(14), teaching management(13), online teaching activities(13), literature review(13), group activities(13), information resources(13), student's learning process(13), study interests(13), help students(12), tutoring class(12), syllabus(12), way of assessment(12), course design(12), f2f education(12), group discussion(12), study skills(12), traditional f2f teaching(11), posting(11), technology coordinator(11), teacher's role(11), project research(11), learning initiative (11), learning platform(11), study conditions(11), online facilitator(11), Moodle(10), pure-online(10), Paper(10), continuing education(10), teaching design(10), educational resources(10), Welcoming for course teaching(10), assessment system(10), collaborative learning(10), learning theory(10), learning support service(10)
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\*dianda=radio and TV universities; CRTVU=China Central Radio and TV University

According to Table 6, the high frequency terms cloud is drawn as shown in Figure 2.



Figure 2 High-frequency Terms Cloud

Among the top ten terms, “tutoring” appeared three times, and “online (distance)” were used four times. It reflects well the characteristics of this course, i.e. tutoring online. The top two are “tutor” and “dianda”, which implies content of the training and characteristics of training objects. Without exception, the objects of the training are all from the dianda system, so they are most concerned about the system. In addition, they are also most concerned about how to be a good “tutor”, that’s why they chose the course. As can be seen from these terms, the discussions of the fifth class are successful, and the course design is reasonable meeting the needs of the teacher-as-learners.

#### 4.3 Dynamic Process of Interactions between Tutor and Learners

We can learn about the dynamics process of learners-tutor interactions from the analysis on time distribution of interactive threads.

This training course consists of six units besides a summative paper writing task (actually seven units). Planned teaching time is six weeks, with one unit each week. Ideally, students should complete the activities of respective units within fixed time, but that is not the case. Taking “topic discussion” of each unit as an example, the topic discussion of a unit will last about three weeks before coming to the end. The distribution of discussion activities each unit over time is shown in Table 7.

Table 7 Discussions distribution in each unit

	Uni	u0	u1	u2	u3	u4	u5	u6	Total
Threa									
Week									
-3		1							1
-2		9							9
-1		45							45
1		91	3						94
2		34	69						103
3		13	58	55					126
4			1	37	30				68
5			3	14	19	58	1		95
6				1	14	32	48	3	98
+7		1			8	2	28	32	71
+8		3			1	2	2	10	18
+9		2					1	11	14
		<b>199</b>	<b>134</b>	<b>107</b>	<b>72</b>	<b>94</b>	<b>80</b>	<b>56</b>	<b>742</b>



In Table 7, the red part represents the number of threads within fixed time each unit, but it has been found that more threads were post within two to three weeks following the end of a unit. Thus, from the beginning of Unit 2, the third unit, activities of three units were overlaid, which explains why the frequency of the activities of learners and tutor in Week 3 reached the peak. The overlay phenomenon may be due to the conflicts between their work and study. Teacher-as-learners could not complete the activity of each week in time, so it would be delayed. In fact, it is understandable from the perspective of learners, and it also requires us to provide certain flexibility in online teaching. At the same time, it is precisely in Week 3 when the first assignment (essay) came, and then the burden of learners began to increase. The chain overlay was caused by the interwoven “new debts and old debts”. Of course, the overlay also increased the burden of the Tutor invisibly.

Now we analyze the time interval of the replies by the Tutor to learners (reply time minus posting time, unit: “day”), and determine the timeliness of replies by the Tutor. There are 297 replies by the Tutor to learners, totaling 73% of all the replies to learners. There are 403 replies to learners totally, including replies by learners to learners. Replies by the Tutor during all weeks are shown in Table 8.

**Table 8 Tutor’s replies each week and their intervals**

Week	Replies	Average intervals (Unit: day)
- 3	1	8.9
- 2	6	5.0
- 1	16	1.2
1	42	0.5
2	58	1.0
3	48	0.7
4	17	1.0
5	42	1.6
6	40	0.9
+ 7	18	0.6
+ 8	5	0.8
+ 9	4	0.1

In the fixed teaching week (from Week 1 to Week 7), the average interval for the replies by the Tutor is 0.90 days. 208 replies (70% of all replies) were completed within 24 hours. As can be seen from the data, replies by the Tutor are timely, i.e. within a single day basically. Taking into account the problem of crossing the night, the timeliness for the replies by the Tutor is very high. In the case without crossing the night, during the daytime, as long as the Tutor is free, basically he will complete replies within half an hour following a new thread reaching his e-mail box.

## 5. Reflections and Conclusion

### 5.1 Reflections

Through tutoring the fifth class, Han Yanhui, the Tutor, believes that the vast majority of teacher-as-learners are very active in learning and participating in discussions. The

discussions represent their own ideas and capacities in in-depth analysis. All the learners of the class are from the system of radio and TV universities. They can find the current major problems within the system, and actively seek corresponding solutions. It shows their concerns and sense of responsibility, and their love to the system and enthusiasm for the transformation to web-based teaching. A prominent feeling is that they are particularly eager to learn about the latest achievements on teaching and research as well as new teaching philosophy in international modern distance education. For instance, they are very interested in the Open University UK, and try to compare it with the system of radio and TV universities in China, looking for gaps and discussing ways for improvement. A prominent feature is that different groups are from different radio and TV universities. The more students from the same radio and TV university, the more helpful it is to enliven active learning atmosphere since they are familiar with each other. At the same time, Han discovers a problem of the class, i.e. the English literacy of the teacher-as-learners needs to be improved. It is very difficult for them to read original English reading materials. Basically they cannot read them through, let alone the English academic papers offered in “Supplementary Reading Materials”. If one wants to learn about leading teaching philosophy of international counterparts and keep pace with the world, he has to enhance his English literacy. Furthermore, for the internationalization of the Open University of China, it will be difficult to achieve it without great improvement of English literacy.

Another prominent issue is academic research methodology. Many teacher-as-learners do not know much about rigorous academic research methods, either qualitative or quantitative. Han, in the module of Summative Paper Writing, intentionally introduces the structure of academic papers and tries great efforts to guide the learners in conducting rigorous academic research. Admittedly these efforts have yielded good results. It also shows that the added module “Summative Paper Writing”, as part of localization of the course from the Open University UK, is successful.

## 5.2 Conclusion

In this paper, a Moodle-based online course is selected as the sample. The research employs learning analytics specifically including analysis techniques of discourse analysis and social network analysis, data mining methods of statistical analysis and visualization, clustering, forecasting, relationship mining and text mining, and tools of SQL SERVER 2005 Analysis Service (SSAS), SPSS, UCINET, EXCEL, ICTCLAS(Chinese word segmentation system), to conduct online teaching reflection on records of the learning process from the perspectives of a tutor, exploring a new form of teaching reflection. It is such a brand new form of reflections on teaching and learning. Research indicates that learning analytics is effective in supporting tutor’s reflections on interactive online teaching and learning. The analysis on interactive forums can help tutors focus on key teaching and learning activities, and achieve a more accurate analysis in contrast with face-to-face teaching activities. By the quantity and content of learners-tutor interactions, and analysis on the dynamic process of such interactions, the tutor can get an accurate feel of the interaction frequency and keyword usage in different periods, reflecting if such interactions, the important teaching activity of the course, have been achieved according to his design. Through the analysis on the structure of learners-tutor interaction network, the tutor can accurately understand the differences of roles by different learners in the process of interactions.

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# **‘Eeny, Meeny, Miny, Moe’ — open educational resources selection for English language skills proficiency at the University of the South Pacific**

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## **Abstract**

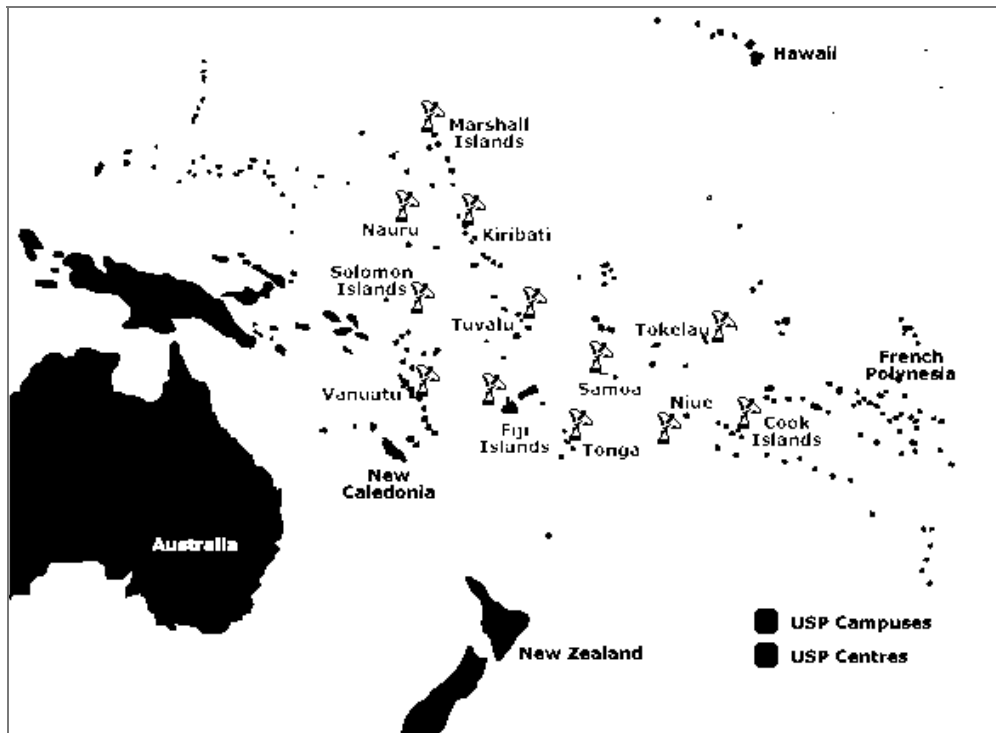
Open Educational Resources (OER) is increasingly being considered as a means through which the learning and teaching experience is enhanced thus ensuring successful outcomes for both learners and teachers alike. According to *A Basic Guide to OER* (Butcher, 2011), OER is continuously being added on a weekly basis thus presents an overwhelming challenge for potential OER users in selecting suitable OER within a reasonable time-frame. The University of the South Pacific (USP) is owned by twelve member countries in the Oceania region which serves more than 20,000 students. English is the official language of instruction at the USP however, students who attend the institution are mostly second or third language speakers of the English language (Mugler, 1996: 273) and thus the grave challenge of providing appropriate and just-in-time support presents itself. The Centre for Flexible Learning (CFL) of the USP saw an immediate need for this and resorted to OER as a possible solution.

This paper focuses on the criteria utilised to select appropriate OER based on feedback solicited from English Language Skills support personnel and CFL staff of the USP. In addition, it will also highlight other factors that were also considered such as licensing types and design viability that was further substantiated through tests conducted in six of the twelve member countries of the USP where students were expected to use these OER. In addition, it will also discuss issues that arose relative to the criteria being used. In conclusion, the paper will outline recommendations to improve OER selection endeavours which could serve to be of value to education providers globally in as far as OER selection in general or specifically for English language skills proficiency is concerned.

**Keywords:** OER selection, English language skills proficiency, OER, The University of the South Pacific

## **Introduction**

The University of the South Pacific (USP) currently serves over 20,000 students in the twelve developing countries in the USP region which are Cook Islands, Fiji, Kiribati, Tonga, Tuvalu, Nauru, Niue, Tokelau, Samoa, Marshall Islands, Solomon Islands and Vanuatu. All of these are small-island, developing economies; located in 33,000,000 km<sup>2</sup> of ocean.



**Figure 1: A representation of USP region**

English is the official language of instruction at the USP however, students who attend the institution are mostly second or third language speakers of the English language (Mugler, 1996: 273) and thus the grave challenge of providing appropriate and just-in-time support presents itself. With the introduction of the bold, new University of the South Pacific (USP) Strategic Plan 2013–2018 (n.d.) educators are faced with transforming all areas of learning and teaching (Koroivulaono, 2014).

USP first committed itself to OER in 2008 by engaging in the European Union-funded EDULINK SideCAP project. Under this project, five institutions; the Open University (OU), United Kingdom, University of the Highlands and Islands Millennium Institute (UHI), Scotland, University of Mauritius (UM), University of the West Indies (UWI) and USP worked together to adapt existing open content to local contexts using the relevant technologies. The USP choice was a study skills module which currently is a useful, interactive, online resource for students studying in the USP region, who wish to refresh their essay-writing skills for tertiary level studies (Koroivulaono, Lesuma-Fatiaki, & Vakamocea, 2010).

In the last decade, technological developments have made enormous strides. In nearly every sphere of life including education, use of technology can clearly be seen and the field of online language education is no exception (Murday, Ushida & Chenoweth, 2008). English is the official language of instruction at the USP however students who attend the institution are mostly second or third language speakers of the English language (Mugler, 1996: 273) and thus the grave challenge of providing appropriate and just-in-time support presents itself. The Centre for Flexible Learning (CFL) of the USP has been faced with this challenge of designing and developing appropriate English language support materials for the flexible learning students. Therefore, CFL formed a group which engaged in the selection of appropriate OERs to help students in English

language skills proficiency. The primary objective of this selection was to provide an online support framework for USP students, most of whom are not first English language speakers.

### **Background of English Language Skills Assessment at USP**

Currently, it is compulsory for all students, registering for degree-level courses, irrespective of the mode and whether they are doing a certificate, diploma or bachelor's program to sit the university's English Language Skills Assessment (ELSA) Test which assesses whether the students have the English language skills needed for successful university study. Table 1 below describes the band scales used in assessing the performance of the students:

**Table 1: Five – band scale**

<b>Band</b>	<b>Student Profile</b>	<b>Implications for USP study</b>
<b>5</b>	Complete proficiency in all academic skills tested	High level of English skills should be a great advantage in degree studies.
<b>4</b>	Good proficiency in most academic skills tested	Good English skills should be an advantage in degree studies.
<b>3</b>	Adequate proficiency in most academic skills tested	English skills are adequate to commence degree studies, and students will benefit from any explicit teaching in academic English (e.g. LL114).
<b>2</b>	Limited proficiency in some academic skills tested	Modest skills may affect success in degree studies; concurrent semester course in English language skills required (EL001).
<b>1</b>	Limited proficiency in all academic skills tested	Limited skills will probably lead to difficulties in meeting course requirements. Extensive concurrent individual support is required.

Source: [http://www.usp.ac.fj/index.php?id=compulsory\\_elsa](http://www.usp.ac.fj/index.php?id=compulsory_elsa)

Those who score an overall total of 1 or 2 are then required to register in EL001: English Language skills course in addition to their full course load for the semester. In addition to this, it is also compulsory for all students to do USP's generic course UU114: English for Academic Purposes which runs in three modes (Face-to-face, Print and Online) in an academic year. Despite so many steps and efforts made by the university, it is evident in students' assignments that they still lack Basic English language skills.

## **Literature Review**

Open Educational Resources (OER) is teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions (UNESCO, 2002). OER is continuously being added on a weekly basis thus presents an overwhelming challenge for potential OER users in selecting suitable OER within a reasonable time-frame (COL, 2011).

OER refers to the “open provision of educational resources enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes. It includes open content, as well as software tools and standards” (UNESCO, 2008). Access to OER resources can play a vital role by “supporting education in developing countries” (Geser, 2007) and by designing and presenting OER in different ways and mediums which are “suited to the learners as much as the educators and the institution” (Lane & van Dorp, 2011).

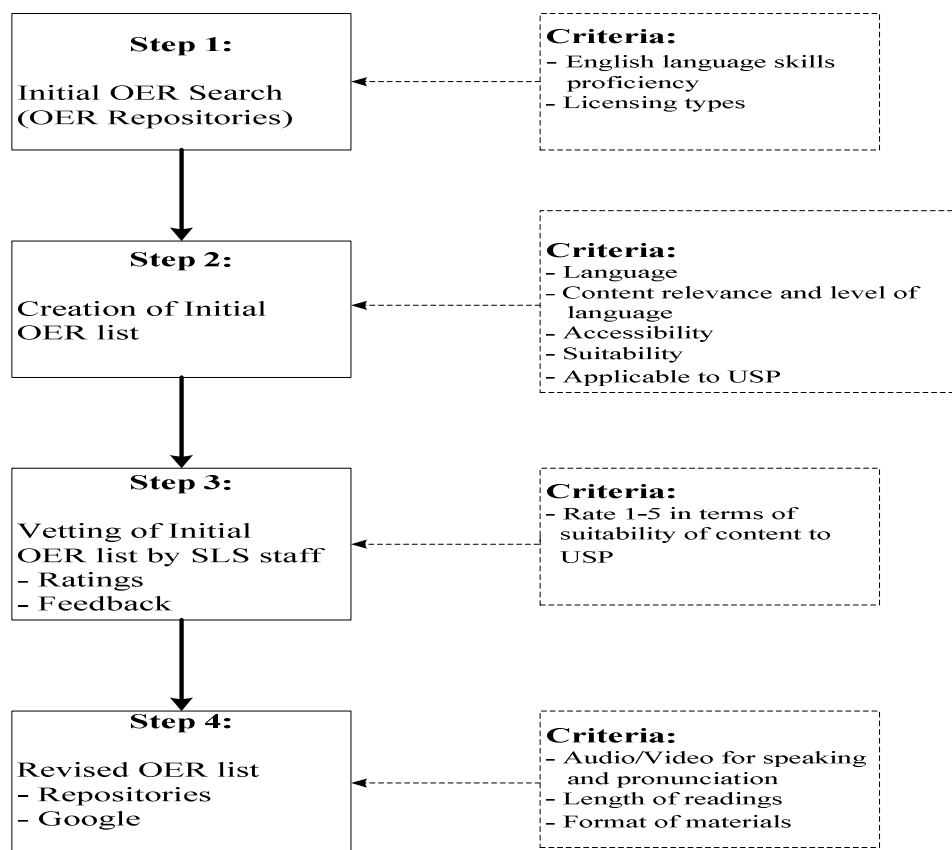
Use of generic search engines such as Google, Yahoo and Bing for searching OER has been the most common practice. According to Pirkkalainen and Pawlowski (2010), searching this way might be a long and painful process as most of the results are not useable for educational purposes. This was evident in this project when the selected OER were vetted by the Student Learning Support (SLS) staff.

OER Repositories are considered the “heavy-weights of the OER movement where one can find large-scale repositories including OpenCourseWare, DiscoverEd (run by the Creative Commons group), OER Commons, Merlot, and in the UK JorumOpen is an open content repository used by education institutions” (Rolfe, 2011).

One of the significant questions about OER is that “Can learning resources designed for specific students in particular contexts be as successful in other contexts?” OER may also bring differential benefits in relation to particular “modes of delivery” (COL & UNESCO, 2012). USP’s context is a good example where courses are designed in four modes: Print, Face-to-face, Blended and Online and the real challenge lies in making sure that the content and delivery of the course serves the purpose that the courses are designed for. With the increased demand for more and more courses to be offered through the flexible mode at USP due to increase in student enrolments, instructional designers have been working with the academics to repurpose OER in the course design.

### **Selection of OER**

There were a number of steps involved in the selection of OER as represented in Figure 2 followed by explanations for each of the steps.



**Figure 2: Steps involved in the selection of suitable OER**

### **Step 1: Initial OER Search**

The first step taken was searching for OER using the OER repositories. It has to be noted that due to the limited time and the urgency of applying for the funds that were available for a limited period by the university through the Strategic Total Academic Review (STAR) project, the team involved in the selection of OERs for English Language Skills had to resort to the easiest and fastest search options, hence the OER repositories were used. License types was not given much consideration as the main aim was to get as many resources as possible related to English language skills.

According to the selection team, they were tasked to specifically search for OER for English Language Skills which had audio and video components together with other formats. The target group was first year students at degree level. The overall assumption was that students entering the university would already be equipped with Basic English Language Skills through their high schools or through Foundation level at the College of Foundation Studies (CFS) at USP. One of the reasons for this criterion was that Pacific Island students learn more effectively through audio and visual aids and through this project, the project team would also be able to test the accessibility of OER in the region which would also inform the design of flexible learning courses.



## **Step 2: Creation of OER list**

The initial list comprised of six OER which had audio and video components and five OER as PDF documents. The selection of English Language Skills Proficiency OER was based on language, content relevance and level of language, accessibility, suitability and its applicability to USP.

## **Step 3: Vetting of OER list by Student Learning Support (SLS) Staff**

The initial list was sent to the SLS staff of the university who then rated them out of 5 (1 being the lowest and 5 being the highest), in terms of suitability of the content for the USP student. Three out of five SLS staff participated in the vetting process. SLS personnel are located within the three faculties of the university and they provide academic support to all students, so that students' learning experience is easier, fun and worthwhile. As the English language is the main means of communication, assistance and support is targeted at communication skills in the four modes: reading, speaking, listening and writing. Therefore, they were requested to rate and provide feedback on the selected OER for English Language Skills Proficiency study materials.

### **Feedback received from the SLS staff is as follows:**

- Some of the readings are quite lengthy. Perhaps the readings should be limited to approximately 6 pages.
- Include OER videos on speaking and pronunciation and it would be good to test the accessibility and connectivity as well.
- Some OER will initially require the student to work with staff for guidance.

## **Step 4: Revised OER list**

Drawing from the vetting results and feedback provided by the SLS staff, the OER list was revised. The final list included twenty-seven OER which had a mixture of audio, video and PDF formats. It was at this juncture, that the search expanded to include the use of generic search engines such as Google search engine. The various sources such as Saylor.org Academic (<http://www.saylor.org/courses/engl001/>) and the Writing Commons (<http://writingcommons.org/open-text/writing-processes/develop-effective-writing-habits>) were selected at this stage as stand-alone, just-in-time English language modules...(Koroivulaono, 2014).

### **Underlying Reasons for using such a criteria**

The title for this paper says it all “Eeny, Meeny, Miny, Moe” and the steps described above further substantiate that this selection was done in haste and as mentioned earlier the project team members were given a limited time to produce this list so that it could be included into the project proposal for funding. Another reason for using the selection criterion was the immediate need to address the ongoing issue of retention and low pass rates in USP due to lack of English Language Skills Proficiency.

### **Challenges**

There were three major challenges to the selection process. Firstly, there were no clear guidelines provided as to the level of content and English language skills OER required. Due to this, the search for the OER varied in terms of the different formats and level of English.

Secondly, the lack of awareness and guidance to licensing types also affected the initial selection of OER. While, there has been a few awareness workshops conducted at the university on Copyright and Licensing types, there is a need for more clarity, understanding and guidelines in this area that can help in the selection of relevant OER. Although there are thousands of OER available in the repositories, not having a good knowledge of licensing types can affect the selection of OER and may later create issues in this regard if the institution decides to repurpose it.

Thirdly, but not the least of the challenges has been in ensuring that the level of English was not affected or rather compromised by the choice of OER. Since the students are coming from the twelve member countries of the USP, their level of English language skills vary and this is dependent upon the type of education curriculum that each country follows. It is for this reason that the SLS personnel were consulted and whose expertise lies in supporting students from such varied background. However, they were only consulted after the selection of the OER was done.

### **Recommendations for OER selection for English Language Skills Proficiency**

Some of the recommendations for improving the selection of English language skills OER are as follows:

- Categorise selection of OER by media format and material type e.g. audio, video, PDF etc. This will help the users of OER to use the most appropriate and accessible OER in the courses.
- Selection of OER should be based on appropriateness of the content and accessibility otherwise it defeats the purpose.
- Educate and be informed about the different licensing types applied in OER.

### **Conclusion**

The OER search and selection process was significantly beneficial in that it proved to be a learning experience for the project team to engage in such a task. From the experience gained through this project in the selection of OER, it is clear that OER repositories should be the first point of reference when searching and selecting OER for English language skills and the like. This work has provided compelling insights to instructional designers in particular, in designing flexible learning course materials for the students in the USP region. The selected OER are now being suggested to faculty staff at the USP to use in their courses as self-study materials and plans are also underway to repurpose some of these OER. While there may have been reservations from some of the faculty staff, it is encouraging to note that some have welcomed it given that these OER can greatly enhance and benefit students who have been challenged by the lack of appropriate English language skills at the higher education level

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# Learning support service system construction in an agro-ecological engineering course at Jiangsu Open University, and its implications

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**Abstract:** In recent years, the rapid development of distance education has become a hot research field in education. The system of student learning support service is an important research content in modern open and distance education. A good process of student learning support service can promote the effectiveness of student learning, and improve the quality of teaching distance education. The learning in open and distance education is based on the resources. Orderly teaching resources improve the efficiency of student learning. To build a sound subsystem of resource services, there not only needs to provide better resources, but also to guide students to build resources. As an important undergraduate course of agro-ecological engineering for agricultural resources and environment in Jiangsu Open University, the group guides students to the construction of personalized teaching resource package in the course of teaching practice, and to master the method of resources construction. In addition, the work of various aspects in the process of learning was strengthened, and students' learning skills and learning methods was trained. In the open and distance education, it emphasizes on the guidance in the process of students' learning and pays attention to the skills. The forms of guidance are very flexible, to support the learning process of students in agricultural engineering courses. The Students' work is checked, evaluated and fed back timely, and help the students maintain interest in learning. At the same time, the guidance of final exam contributes to the improvement of students' learning motivation. On the other hand, to provide a strong technical support for open and distance education in agricultural eco-engineering course, a complete information communication channels are constructed, and the network platform is strengthened. Furthermore, a sound management services system is established, to support the teaching work of agricultural eco-engineering course smoothly and efficiently.

**Key words:** Open and distance education, learning support service, agro-ecological engineering

According to Usun (2004), a distance education program must design effective learner support services and systems. Garrison and Baynton (1987) define learner support as the resources that learners can access in order to carry out the learning processes. Garrison (1989) observes that in distance education “support is concerned with a range of human and non-human resources to guide and facilitate the educational transaction”. Student support services often caused controversy in distance education. Some people think that student support services designed just to make up the teaching or learning material defects. Others believe that, student support services is necessary for effective learning no matter how teachers teaching. Some people were seen the student support services as the traditional face-to-face teaching remained. However, student support services do not usually use of face to face, it requires skills which different from the traditional face to face way. Regardless of whether the student support services a teaching supplement, it should be as part of a distance learning course to be designed. Many scholars discussed the concept of student learning support services. Generally, the learning support services for distance learners to solve a problem or difficulty, to improve the effectiveness of distance learning and to provide various types of help activities. Gunawardena (1988) points out that the dominant feature of distance education is the physical and often temporal distance that separates the teacher and learner. Because distance students are often placed in a unique situation in which neither teachers nor fellow students are physically present to clarify, discuss, or provide feedback, effective distance education requires a sound learner support system.

With the spread of such information technology as computer networks, satellite communication network, cable television networks, people's ways of living and learning are undergoing profound changes. Modern distance education established on the basis of computer networks is booming in China, which exerts an important impact on the development of modern educational technology (Guo, 2010, p. 123). At present, learners can communicate through asynchronous discussion. Meanwhile, some student-centered learning and evaluation can be effectively achieved. In this way of learning, the teaching of teachers and the learning support of students are inseparable. Throughout the development in the process of distance learning, When learners and support organizations contacted, it produced the student support services. However, student support services can only occur when learners and their support organizations together in a sense, although they are often geographically separated. Liking the

materials package of other course, student support services as part of the curriculum should be carried out at the beginning of the course, and evaluated and adjusted to get the recognition of the students.

Learning support service offers a unique opportunity for college students to get involved with their communities and to integrate service projects with classroom learning. Support services programs benefit students, schools and the communities as a whole. For students, through community service can strengthen their civil responsibility, enhances their personal skills, and become an integrated part of their life learning (Chang, 2014, p. 554). The importance of student support services at least embodies in the following three aspects. Firstly, it is one of the media in distance learning. Secondly, it promoted the generation of new communication technologies in application process. Thirdly, it has important practical significance in terms of cost and distance education student retention rate. Therefore, student learning support service system is a very important research and construction content in the modern distance education. Good learning process support services is the guarantee of promoting the effectiveness of students learning and improving the teaching quality of distance education. Support systems developed in recognition of student needs help the distance learner become competent and self-confident in learning, social interactions and self-evaluation (Rae, 1989). Agro-ecological engineering is an important undergraduate course for agricultural resources and environment major in Jiangsu Open University. In the distance and open education of this course, the teaching staff found that, to improve the level of learning support services in agro-ecological engineering, we could proceed from several aspects of resources construction, the teaching process, technologies and management services.

## **1. Integration of various teaching resources and building a sound resource services subsystem**

The study of open and distance education is based on learning resources, orderly teaching resources can improve the efficiency of student learning. Building a sound resource services subsystem, not only to provide better resources, but also to guide students to build resources.

### **1.1 Guiding students to the construction of personalized teaching resource package**

Guiding students to the construction of personalized teaching resource package, and is very important to the study of agro-ecological engineering courses in open education.

The study resources are more abundant, but these resources are often presented in the form of individual forms in front of the learner. In the course of beginners are not familiar with the situation. In the face of so many teaching resources, beginners often feel unable to start. For most open education weak learners, individual teaching resources were needed to further organizing, that can be more suitable for different learners. The teaching resources of agro-ecological engineering courses include multimedia electronic textbooks, the knowledge of the course, the explanation and demonstration of the key and difficult knowledge, the electronic lecture notes of supporting materials, test database and homework questions expand resources etc. Among them, the multimedia electronic textbook is an electronic version of the textbook, and inserting the necessary graphics, images and animation. The explanation and demonstration of the key and difficult knowledge is designed for learners, and help them grasp the key and difficult course. Expand resources is to provide relevant learning materials for each chapter.

### 1.2 Guiding the students to grasp the method of resource construction

Mastering the method of resource construction, not only to facilitate the students' learning, but also improve their learning ability. In order to guide the students to master the learning methods, teachers can help students organize some resources according to some of the key and difficult content, such as the difference between agricultural ecosystem and natural ecosystem. Teacher discusses the question from six aspects of the biological constitute, Regulatory factors, the net productivity, the open degree of the system, the law and the goals of the system. Firstly, we give some examples, and let the students summarize the differences between the two ecosystems, and then guide the students themselves to summarize the similar data.

## **2. Strengthening the link in the learning process, and improving the students support in the learning process**

### 2.1 Strengthening the guidance service

In the beginning of the school, an important work of schools and teachers have to do is to learn skills and methods of training for students. In the agro-ecological engineering course, before officially entered the study, students can test the related knowledge. The test subject focuses on the basic knowledge related to agricultural ecology. That can help students establish the concept of future study and



understand the concepts of basic knowledge. Before the formal learning, most people take the initiative to review the basic knowledge.

## 2.2 Pay attention to the guidance of the learning process

The course of agro-ecological engineering is rich in content and has a certain engineering practice. For the majority of open an distance education students, due to the weak study foundation and the lack of learning energy, to learn this course has a certain degree of difficulty. Therefore, to improve the learning quality of agro-ecological engineering course in distance education , we must strengthen the student counseling.

### 2.2.1 Pay attention to the skills in counseling

In open and distance education, to improve the quality of coaching, the form of counseling need to be more flexible. For example, we can have a variety of arrangements in time, and to ensure that students can use their spare time to participate in the learning activities, such as the design of non real time BBS discussion. In addition, we can adopt the centralized counseling. Real time online tutoring or non real time guidance can also be used in the course counseling. Due to the more knowledge, the course content can be adequately designed, to ensure the counseling of the key and difficult problem. Furthermore, the counseling skills and the relationship between the counseling content and students' independent learning were emphasized on in open and distance education.

### 2.2.2 To strengthen the guidance of learning method.

In open and distance education learning, due to the conflict between work and learning, most students can only take "individualized self-learning". In this case, coupled with the agro-ecological engineering curriculum itself with some difficulty, to improve the quality of learning distance education in agro-ecological engineering course, tutors must strengthen the guidance of learning methods for students, that including the methods and techniques of self-learning and collaborative learning. At the same time, to guide students to continuously improve the ability of learning.

## 2.3 To strengthen the feedback of assignments and examinations

Teaching evaluation can promote students' enthusiasm for learning. Paying attention to the work inspection, evaluation and feedback, can help students to maintain a

certain interest in learning. Similarly, the examination is a better way to test students' learning. Paying attention to the final examination guidance can promote students' enthusiasm to learn. Students for learning agro-ecological engineering course, mostly come from the line of agricultural production and processing staff, and some students engage in agriculture and rural management. The majority of these students are still in work, and the daily tasks are heavy. So there is a contradiction between the t work and learning. Therefore, a personalized learning service is very necessary. According to the learning situation of individuals, teachers can provide job counseling and coaching for individuals, and improve the students' initiative on this course learning.

In open and distance education, teachers can not be confined in the traditional understanding of the examination. They can design different forms of examination to help students to learn. For example, in the completion of a knowledge point or a unit, teachers can use the unit test exercises arranged students to do. The completion time and the forms are not limited for the students. If students complete the test within the stipulated time and guarantee the quality, we can give a better evaluation. Furthermore, breaking the traditional understanding of the concept for the exam is the breakthrough for the changing concept in open and distance education.

### **3. To provide a strong technical support for open and distance education in agricultural eco-engineering course, a complete information communication channels are constructed, and the network platform is strengthened.**

In open and distance education, teachers and learners are in a quasi permanent separation state. In this state, even if the learning support services of the organization of distance education complete, but not necessarily occur and complete. As a "resource" exists and cannot replace the teaching. Therefore, to explore the conditions in the network environment, how to build a Web based learning support service system for learners is very important. That can provide a comprehensive, personalized learning support service for the open and distance learners.

In the course of agro-ecological engineering, many teaching resources are produced by multimedia devices, such as the online courses, audio materials, CAI courseware, etc. In addition, strengthening the construction of the network and other communication facilities are very necessary. That can improve the communication between students and teachers. To ensure the development of agricultural ecological engineering curriculum, the teaching infrastructure should be

able to facilitate the audio-visual learning for students. Perfect communication facilities, such as online teaching platform, the learning platform of video-on-demand and computer network environment are very important in open and distance education.

In practice, we believe that the focus of the development and construction of open and distance education courses is the function of the online learning platform and rich resources. At present, the basic function of online learning platform for agro-ecological engineering course in Jiangsu Open University include the upload of resources and information, the browsing and retrieval of resources and information, real time or non real time interactive system, homework system, self testing system, the teaching process tracking and information management system. Among them, real time or non real time interactive system include the online virtual classroom, e-mail, BBS forums, etc. Homework system include homework question data management, teacher arrangement and check the homework, students complete the assignments and view the results. The teaching process tracking and information management system mainly record the behavior of students and the learning process, teachers' teaching and the teaching management information.

#### **4. To establish a sound management services system, and improve the management service subsystem**

Sound system is an important guarantee of subject teaching. It is difficult to ensure the conduct of the teaching work without a good management system. The course of agro-ecological engineering in open and distance education need to manage support services, such as the various aspects of services and management in teaching, the management of exams, school and teaching materials, the development and construction of curriculum resources, etc. Only a perfect management service system can support the teaching work of agricultural eco-engineering course smoothly and effectively.

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# **The influence of internal and external factors on student participation in online tutorials at Universitas Terbuka**

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## **Abstract**

Online tutorial (Tuton) is one of the services given learning Open University (UT) UT S2 students. This activity must be followed by students of Master of Management (MM) UT. In Tuton, students are required to participate actively, both in learning the material initiation, discussion, and writing tasks. The main problem that often occurs in Tuton is a student in the following Tuton inactivity. It can be caused by internal factors and external factors students. The main problem that often occurs in Tuton is a student in the following Tuton inactivity. It can be caused by internal factors and external factors students. What is meant by the internal factor is the ability of students to use the computer, the student's ability to use the Internet, Motivation in following Tuton, allocation of time in following Tuton, financial capability and ease of access to the internet and the location, while the external factors include the Internet tissue disorders, problem management Tuton, completeness problem Tuton facilities granted tutors, tutors too late to give initiation / materials / assignments, tutors do not provide feedback and ability to tutor problem in utilizing the facility Tuton. The data retrieved from the database record Tuton includes many student access to material initiation, discussion forums, and task Tuton, while other data are collected through questionnaires were 241 students at 2012.2. The data obtained were analyzed using factor analysis and SEM (Structural Equation Model) assisted with the program SPSS 17:00. The results showed that the level of participation Tuton influenced by internal factors (-0.42) and external factors (-0.04). Internal factors and external factors have contributed to student participation rate of 18%. That is, changes in the level of student participation in Tuton by 18% due to internal and external factors were studied. Most of the variations of this change is caused by changes in internal factors rather than external factors.

Keywords: internal factors, external factors, student participation, online tutorials

## BACKGROUND

Until now it is still underutilized Tuton S2 UT students, although students do not need to access it to pay in addition to the cost of the internet. Studies conducted Meilani (2005) find of course that ditutonkan Management Program, only 32% of students who use it. There are several obstacles that students perceived in following this tutorial, namely the difficulty in accessing the UT website (35%), slow tutors provide initiation (35%), UT network is often problematic (29%), less responsive tutor student responses or answers to the material or questions provided tutors (16%), students do not have internet access of location of residence and students can not use the computer, each for a maximum of 13%.

Budiwati research results (2007) found that the average student access the Master of Public Administration Program (MAP) for one semester for each course is less than 50% of that required. Even today there are subjects that access for one semester only 5%, and the highest range is only 55%. This suggests the participation of students in Tuton is not maximized. The reason, among others, the students are not used to access the Internet, the communication between the tutor face to face with a tutor Tuton is still minimal or none at all, the internet connection is slow, low ability students in the use of learning technologies, and tutors delay in performing their duties.

Susanti (2007) highlighted the influence of internal factors on the formation of student knowledge and student participation in the action Tuton. The results showed although the online tutorials for students of the UT Graduate Program is an activity which is mandatory for students, but it turns out in practice the level of student participation in this Tuton is low. It is seen from the number of days in a semester of access does not reach half of that expected. The reason is the student's internal factors, in particular the ability to use low-tech learning. Student participation in the MAP in following Tuton Administration Research Methods course is only about 41.67%.

This article wants to examine the influence of internal and external factors on the level of student participation in Tuton. The study was conducted with a sample of 241 students from 8 (eight) UPBJJ-UT. Data obtained using a questionnaire. Aspects that are asked in the questionnaire refers to the study questionnaire developed Meilani (2005) and Susanti (2007) with some modifications. Data were analyzed using factor analysis and SEM (Structural Equation Model) program assisted the Statistical Program for Social Sciances (SPSS) 17.00.

Data collected from the database records of learning support services (Tuton) includes the number of students access to material initiation, discussion forums, and task Tuton, while other data are collected through a questionnaire. For more details, contained in Table 1 below.

Table 1. Data Collected

Code	Indicators are researched material	Resources
<b>Participation Factors</b>		
Material	Total Access material data base Tuton initiation	database tuton
Discussion	Total Access discussion	database tuton
Tasks	Total access tasks	database tuton
Y1	Tuton reading material online	questionnaire
Y2	Involvement in discussion forums Tuton	questionnaire
Y3	Working / transmit duty	questionnaire
<b>Internal Factors</b>		
X1A	The ability of students to use computers	questionnaire
X1B	Students' ability to use the internet	questionnaire
X1C	Motivation in following Tuton	questionnaire
X1D	Allocation of time in following Tuton	questionnaire
X1E	Financial capability	questionnaire
X1F	Ease of access to the internet and location	questionnaire
<b>External Factors</b>		
X2A	Internet network disruption	questionnaire
X2B	Tuton management issues	questionnaire
X2C	Completeness problem Tuton given facility tutor	questionnaire
X2D	Tutors too late to give initiation / material / assignments	questionnaire
X2E	Tutors do not provide feedback	questionnaire
X2F	Problems in utilizing the facility's ability tutor Tuton	questionnaire

Participation is formed by 5 (five) indicator, as do / send task (Y3) almost uniformly or almost no variation, so it is not effective if it is used as an indicator. In addition, work activities / tasks are sending off the line, because the task can be done without having to always access Tuton. Therefore, this indicator is not used in the subsequent analysis phase. Internal and external factors, each formed by six (6) indicators of X1A to X1F (internal factors) and X2A to X2F (external factors).

At this stage of the preparation of the structural model, this participation factors into endogenous latent factors, internal factors and external factors become latent exogenous factors. The estimation method used is the method of maximum likelihood (ML) by the number of observations required minimum of  $0.5 q (q - 1)$ ,  $q$  is the number of measurement variables in the model. According to the rules of t-rule, on condition that the model is identified if the number of parameters estimated is less than or equal to  $0.5 q (q - 1)$ . ML method chosen for this model is consistent and efficient for sample sizes above  $0.5 q (q - 1)$ , or about 200-500, depending on many indicators are used, although the assumption of normality of the data is not being met. ML method slightly biased when the number of samples (about 50) or less than  $0.5 q (q - 1)$ . Bollen (1989) states that although the indicators of exogenous variables is not a normal distribution, the maximum likelihood estimators remain consistent. That is, by increasing the number of samples, maximum likelihood estimation method will be even closer to the true parameters.

## RESULTS AND DISCUSSION

Based on the eligibility criteria of the model in Table 2 still large that the null hypothesis rejected, indicating that the model does not depict empiric data. However value of  $\chi^2$  test the sample is too small (less than 50) or too large (more than 500),  $\chi^2$  becomes unreliable. Therefore, the value must be accompanied by due diligence another (Tabachnick and Fidell in Ferdinand, 2000). In SEM there is no single statistical test equipment to measure or test the hypothesis that the model is created, but using a variety of statistical tools, such as GFI, AGFI, RMSEA and RMSR.

Table 2. Feasibility Model Test Results

Criteria	The critical value / Test Criteria	Suitability Index	Evaluation Model
$\chi^2$	Relatively small ( $p \geq 0.05$ )	163.21 ( $p=0.002$ )	Marginal
GFI	$\geq 0.90$	0.90	Very good
AGFI	$\geq 0.80$	0.87	Very good
RMSEA	$\leq 0.08$	0.049, (0.030 ; 0.065)	Very good
RMSR	Relatively small	53.91	

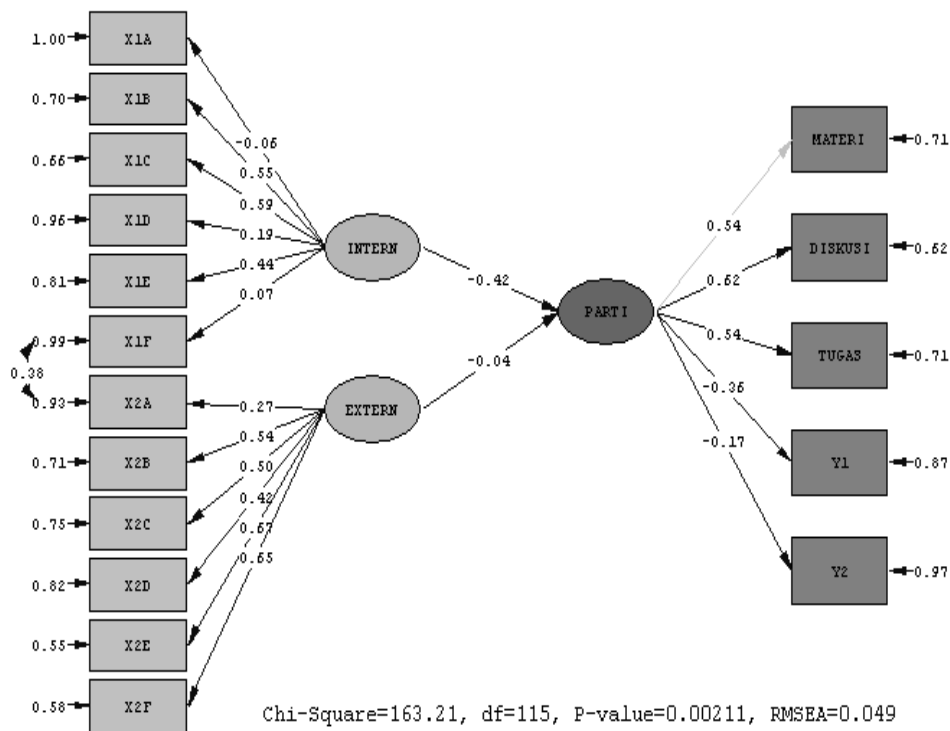


Figure 1. Measurement and Structural Participation Tuton Model



Based on the results of the analysis of the suitability of the model can be seen that the model can be said to be planned fit (RMSEA, GFI, AGFI, and CFI), because once tested correspond to the reference value, the results meet the requirements of structural equation models. It can be said that the test results are good models of suitability, even if p-value of his Chi-Square  $0.000 < 0.05$ . Test the suitability of the model shows the model deserves to be analyzed further. Conclusion models in Figure 1 above shows that the model can be accepted as a model to describe the data Tuton participation.

To measure the validity of each of the individual indicators used validity raw direct relationship between observed variables and latent variables. The reliability of each indicator (individual reliability) was measured with a commonality, while to assess the reliability of the indicators in measuring a latent factor used jointly construct reliability index.

Validity of the suggested value of at least 0.5 (Sharma, 1996). Direct raw coefficient (validity) for a number of indicators to be equal to or greater than  $\alpha = 5\%$  ( $\alpha = 0.05$ ) (Table 3), with the absolute value of t is greater than 1.96 ( meaning that a number of indicators that are used are valid in measuring each respective latent factors. However, a number of other indicators are not valid measure latent factors.

Table 3. The Results of Validity and Reliability of The Structural Equation Model of Participation Tuton

Factors and Indicators		Content	t- value	Reliability	
		Validity ( $\geq 0.50$ )	( $\geq 1.96$ ) ( $\alpha = 5\%$ )	Factor ( $\geq 0.70$ )	Indicator ( $\geq 0.5$ )
<b>INTERN</b>	<b>INTERNAL PROBLEMS</b>			<b>0.16</b>	
X1A	ability to use the computer	-0.06	-0.63		0.004
X1B	Ability to use the internet	0.55	5.25		0.30
X1C	Motivation in following Tuton	0.59	5.49		0.34
X1D	Allocation of time in following Tuton	0.19	1.94		0.037
X1E	Financial ability	0.44	4.41		0.19
X1F	Convenience and location with internet access	0.07	0.78		0.005
<b>EXTERN</b>	<b>EXTERNAL CONSTRAINTS</b>			<b>0.61</b>	
X2A	Internet network disruption	0.27	3.36		0.073
X2B	Tuton management issues	0.54	6.47		0.29
X2C	Completeness problem Tuton given facility tutor	0.50	5.97		0.25
X2D	Tutors too late to give initiation / material / assignments	0.42	5.00		0.18
X2E	Tutors do not provide feedback	0.67	8.26		0.45
X2F	Problems in utilizing the facility's ability tutor Tuton	0.65	7.97		0.42
<b>PART 1</b>	<b>PARTICIPATION</b>			<b>0.58</b>	
MATERIAL	Total Access material initiation	0.54	*		0.29
DISCUSSION	Total access discussion	0.62	4.26		0.38
TASKS	Total access tasks	0.54	4.16		0.29
Y1	Reading material Tuton	-0.36	-3.27		0.13
Y2	Involvement in discussion forums Tuton	-0.17	-1.72		0.028

Note.: \* This indicator is used to define the scale of the latent factor loading set 1.

Individual reliability are presented in the rightmost column of Table 3, this value is the value of R2 each measurement equation models of each indicator. An indicator is said to reliable (reliable) if the value of the reliability of individual worth more than 0.5 (Sharma, 1996).

All indicators of access to valid and sufficient participation factor "reliable" in measuring this factor, while the activity indicator is invalid. Initiation activity indicator reading, though not invalid, but statistically significant ( $t\text{-value} > 1.96$ ), meaning that even though it is still relatively small indicators carries with participation factor. Thus, the participation factor can be measured by four (4) indicators, namely access to the material, a discussion of access, access assignments, and reading activities initiation. While involvement in discussion activities are not effectively used as an indicator to measure participation.

On factors internal problems, based on the validity and significance, there are only three (3) indicators that can be used to measure these factors, the ability of students to use the internet, motivation in following Tuton, and financial capabilities. As for the factor of external constraints, all the indicators can be used, unless the indicator Internet network disruption.

Construct reliability for each latent factor for the successive internal factors, external and participation is 16%, 61% and 58%. The greater the reliability index, the better the construct will cause these indicators in measuring factors. Suggested construct reliability value is greater than 0.7 (70%), all constructs are not reliable,  $\geq$  (Sharma, 1996). Based on both criteria (only the external constructs and constructs participation approaching this figure.

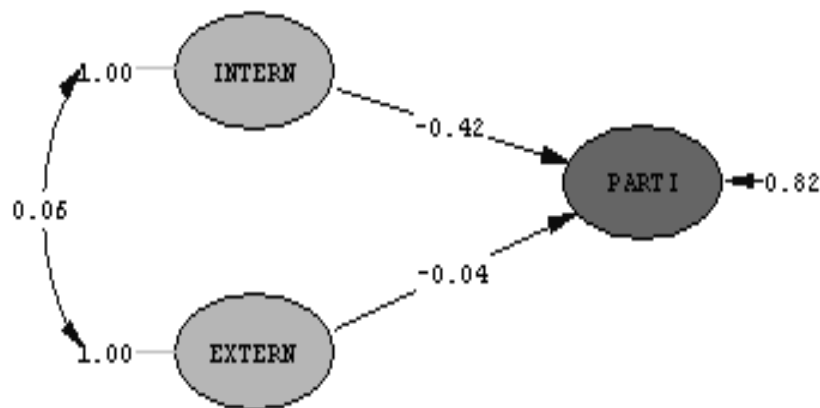


Figure 2. Structural Model of Student Participation

Structural model in Figure 2 shows that the internal and external factors have a negative influence on the level of participation Tuton, with each internal factors (influence coefficient -0.42) and external factors (influence coefficient -0.04),  $R^2 = 18\%$ . This means there is conformance with the expectation that any reduction of barriers to internal factors and external factors issues, together, result in an increase in the participation rate Tuton. Or conversely, any additional constraints on the internal factors and external factors will reduce student participation in Tuton. According to this model,

first, the direction of the coefficients match expectations that any reduction of barriers to internal and external factors (mean increase of internal factors or external circumstances for the better), together, result in an increase in the level of student participation in Tuton. Secondly, the internal and external factors have contributed to student participation rate of about 18%. That is, changes in the level of student participation in Tuton about 18%. Variations of these changes can be explained by changes in the conditions of internal and external factors were studied. Most of the variations of this change will be explained more by changes in the internal factors of the external factors.

Thus, based on the indicators, internal factors that influence participation Tuton is the ability of students in using the Internet, the motivation to follow Tuton, and financial capabilities. External factors influence the same (balance) between the level of the condition of the indicators of the level of student participation in Tuton.

Although the model has a low reliability, but of the validity and significance, this model can still be used to assess the influence of structural indicators of the level of participation Tuton. To compare the structure between the indicator and the influence of structural factors, it can be seen from the raw value of the coefficient of the direct relationship throughout his t-significant values (not statistically different from zero). Greater influence of internal factors (external factors than) the level of participation Tuton. As already noted, there are at least three (3) indicators of the internal factors that inhibit participation Tuton, namely: motivation in following Tuton, students' ability to use the internet, and financial capabilities.

### **CONCLUSION**

Tuton participation rate is influenced by internal factors (influence coefficient -0.42) and external factors (influence coefficient -0.04). Internal factors and external factors have contributed to student participation rate of 18%. That is, changes in the level of student participation in Tuton by 18% due to internal and external factors were studied. Most of the variations of this change is caused by changes in internal factors rather than external factors.

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# **Factors affecting adult learners' persistence in e-learning programmes in Ho Chi Minh City, Vietnam — A mediation analysis of learners' motivation**

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**Abstract** – E-learning has become an important educational technology that helps enhance learning community and long-life learning opportunities for all people in the 21<sup>st</sup> century. Along with e-learning's rapid growth, the low persistence rate of e-learning programs has become a considerable issue of many educational institutions. This research aimed to examine the relationships between the obstacles that adult learners faced with their motivation in learning process and how they overcame to persist with their e-learning programs. Quantitative approach was mainly applied with survey questionnaires delivered directly to 403 learners who just finished their e-learning degree programs in Ho Chi Minh City. The results showed that learners' motivation had the strongest impact on learners' persistence, next was family support, time management skill and organization support. The findings implied that the persistence rate could be increased if e-learning program developers or instructors provided better way to enhance the relevance of the course. The results also indicated that adult learners need to be supported from their family or/and organizations in order to finish the online courses. Moreover, with better time management skills, adult learners would have more possibilities to complete their e-learning courses.

*Keywords:* distance learning, e-learning, adult learner, motivation

## **1. INTRODUCTION**

In an era of rapid change, parallel growth in the deployment of information and communication technologies, e-learning is used in nearly all education institutions single or alongside with traditional educations (Rostaminezhad et al., 2012). Having its root from distance learning, e-learning can be described the effort of providing access to learning for those who are geographically distant (Joi et al., 2011). During the last two decades, there is the rapidly increasing the number of not only adult learners, who attend in e-learning programs but also the online courses. In Viet Nam, according to Dung (2008), he evaluated that e-learning is a future model education which helps learners promote their self-learning ability. As the report of Dobeco (2014), e-learning in Vietnam is the highest in the top ten growth rate, which is above 30%, more than four times the worldwide aggregate growth rate.

Along with e-learning's rapid growth, the low persistence rate in e-learning has become a considerable issue of many organizations. Meister (2002) indicated that 70 percent of adult learners enrolled in online program did not complete it. Smith (2006) reported the dropout rate in the UK Open University was 35%, in Turkey it was 36% (Yukselturk and Inan, 2006), 54% for US Midwestern University (Park and Choi, 2009). Similarity, in Viet Nam, problems related quality and lack of persistence are the main issues attracting the concerns of many organizations, government and society. According to internal report, the persistence rate per each course is quite low, approximately 40 percent of total students, who participate in e-learning programs of E-learning Center of Hanoi Open University. In addition, University of Science - Ho Chi Minh City, the graduation rate is just about 20 percent and the persistence rate is approximately 14%.

Consequently, the lack of persistence makes the doubt of its quality and considers it as failure of distance learning and e-learning. So persistence is identified as an important issue needed to analyze carefully because its rate is seen as a measure of the quality of the education (Rovai, 2003). To hold the goal of bring opportunities for long-life study and create the convenient to retain adult learners in e-learning program, there are many problems must be discovered and addressed and a study needs to be examined variables identified in the literature so can determine which variables most are significant to contribute learners' decision to persist and find out the relationships among these variables. However, due to time constraint and limited resources, this study concentrate on the effect of learner side (learners' motivation, study skills, family support, organization support, study time conflict) on adult learners' decision to persist (Bean and Metzner, 1985, Rovai, 2003; Park, 2007; Park and Choi, 2009).

## **2. LITERATURE REVIEW**

### **A. *Learners' Persistence***

By review comprehensive studies, Rovai (2003) mentioned, it is "the behavior of continuing action despite the presence of obstacles from the first year until degree completion" and in adult education context, persistence can be defined as the length of time an adult attends classes. Levy (2007) also described persistence as learners successfully completed an e-learning course. In comparing two groups of persistence and drop out learner in online education, Park & Choi (2009) concluded that persistence in online education is a complex combination of various factors leading adult learners' successful. In other words, it is identified as the ability to complete an online course despite obstacles or adverse circumstances (Hart, 2012). In this study, persistence is defined as (1) action of adult learners overcoming their obstacles to complete the course and earn the graduating degree (2) the lengthiest time that adult learners attend in this program.

### **B. *Theories of Learners' Persistence***

Related to the question of what makes students persist despite of below, there are many theories and theoretical framework have been approaches. Tinto's student integration model (1993) and Bean and Metzner's student attrition model (1985) "have guided dropout research studies" and are the first models that explain persistence through the relationship between student and institution (Park, 2007). In Tinto's model,

he stressed that social integration and academic integration produced stronger student commitment to their institutions and increased their persistence. However, Tinto's model has limitations applying for nontraditional students and not helpful for research the attrition of adult learners because there is little affects from the academic and social integration on those students.

In a conceptual model for persistence Bean and Metzner (1985), they try to explain the persistence of nontraditional learners defined that "older than 24, does not live in a campus residence (i.e., is a commuter), or is a part-time student, or some combination of these three factors". In this model, they pointed out that nontraditional students were more affected by the external environment than traditional students – the main difference in attrition progress because adult learners had many reference group outside the program as family, work, friend to depend on. Therefore, the model of Bean and Meztner (1985) looks more reasonably than Tinto's ones.

Since Rovai (2003) showed that Tinto's model and Bean and Metzner's model have limitation to explain the persistence in online education, he developed a new persistence model to explain persistence of adult learners on distance learning online program. He stated that adult learners' persistence in online education is complex actions to different factors, not only individual characteristics, but also numerous factors from external environment or in programs. Rovai's framework is built up by review of the most comprehensive previous framework, tested and expanded by Packham et al (2004).

Based on to Rovai's framework, Park (2007) and Park & Choi, 2009 continue to develop and propose model, which is revised the structure and drop some variables because of little evidence of their significant. To be more detail, they put "learner skill" in a grey box because it's found very little in previous researches. Park (2007) also moved external factors to "prior to" and "during" the course because she claimed that those factors affect both process of the course. In Park & Choi's model, they showed that learners' motivation (including satisfaction and relevance), family support and organization support had significant differences from learners' persistence and learners' drop out. Since the sample was selected from only one institution in the U.S, the findings from this research could not be generalizable for different environments and needed to confirmed in many situations in the future

Accordingly, the purpose of this study were to find out factors that have direct and indirect impact on ability to persist of adult learners and to identify the meaningful factors contributing adult learners' decision to persist. Particularly, this research focused on factors related learners' side: learners' motivation, study skills, external factors (family support, organization support and time conflict).

Motivation has the significant role as one of the most frequently studied variables closely related to ability to persist of adult learners in e-learning contexts (Chyung, 2001; Erman & Fethi 2006; Park, 2007; Park & Choi, 2009). Among sub-dimensions of learners' motivation, learners' satisfaction and relevance were included in many researches before as a major and direct factor which determined learners' decisions about whether or not to continue in the program (Bean and Metzner, 1985; Chyung et al., 1998; Fredericksen et al., 2000; Doo & Kim, 2000; Levy, 2007).

Although Park & Choi (2009) put "learner skill" in a grey box because it was found very little in previous researches, there are many studies mentioned its role in

relation with adult learners' successful in online context (Rovai, 2003; Watkins, 2004). To be more specific, time management skill, internet and online communication skills were selected to explore the relation with adult learners' persistence because many previous studies mentioned two skills as required skills for e-learners (Rowntree, 1995; Cole, 2000; Zimmerman, 2008).

The importance of family support interfering learners' persistence was recognized in previous frameworks (Bean & Metzner, 1985; Tinto, 1993; Rovai, 2003; Kember, 1989). Park and Choi, 2009 argued that due to associating with various roles in adult learners lives, family support is the determinative obstacles to their learning. Among the external factors mentioned in many previous researches, time conflict was also "the most frequently cited factors" (Parker, 1999; Willging & Johnson, 2004, Erman & Fethi, 2006). The role of organization support or support from workplace management was not received in many researches or mentioned directly, however in some studies, it is evaluated as a factor towards learners' persistence and describes in different terms: work responsibilities, jobs, support from workplace. After analysis data from 98 persistent learners and 49 drop out learners, Park and Choi, 2009 came to conclude that organization support "have been known to be crucial obstacles to adults' participation in learning" and effect on learners' decision to drop out or persistence. However, the conclusion is not enough reliability apply to learners in different environments. Although it is not clear whether it is perceived as important or not, it needs research further in this study.

With the mentioned dependent, mediating, and independent variables related learners' persistence above, the research questions of this study are:

**Question 1:** To extent what is relationship between study skills, family support, organization support, time conflicts and learners' motivation?

**Question 2:** What are meaningful factors that contribute to adult learners' ability to remain "persistent"?

**Question 3:** What is the relationship between learners' persistence and learners' motivation?

**Question 4:** Do factors of learners' study skills, family support, organization support, and time conflicts indirectly affect learners' persistence through the mediation of learners' motivation?

### **3. METHODOLOGY**

#### ***A. Population and Sample***

The target population of this study included two groups: (1) adult learners who completed and earned a graduated degree from Ha Noi Open University or University of Science - Ho Chi Minh City; (2) adult learners who will attend in the final semester in the end 2014 of Ho Chi Minh City University of Technology. Based on the report of three e-learning programs in Ho Chi Minh City, the total students in Southern Viet Nam is approximately 12.000 learners, the persistence rate is about 40 percent, which is equivalent with 4.800 learners' persistence.

Because the limitation of time and cost, it is acceptable to base on Krejcie and Morgan's tables (1970) to determine sample size of this study. The sample of this study was 403 adult learners who completed the online course or prepare the graduation exam

in the end 2014 in three e-learning programs in Ho Chi Minh City. Of the 403 participants, the percentage of male was greater than female. The age of adult learners reflected adult learners' characters in previous definitions and theory that adult learner was categorized in the group of 18 to 65 years-old. The statistical number table 1 also again confirmed the characters of adult learners who have job experience and joint higher education to promote in their work.

*Table 1. Participants' demographic information*

<b>Demographic variables</b>		<b>Frequency</b>	<b>Percentage</b>
Gender	Male	248	61.54
	Female	155	38.46
Age	18 - 25	33	8.19
	26 - 30	191	47.39
	31 - 35	102	25.31
	36 - 40	58	14.39
	41 - 45	14	3.47
	46 - 50	5	1.24
Work seniority	< 5	81	20.10
	5 - 10	229	56.82
	11 - 15	54	13.40
	16 - 20	33	8.19
	> 20	6	1.49

### ***B. Research Instrument***

The survey was designed depend on the items of two dependent variables and nine independent variables which were mentioned in chapter two. Except individual background part, almost questionnaire of this survey were designed based on five-point Likert Scale or another form of five-point Likert Scale as followings:

- For questionnaire in Study skill part: scale ranging from 1 is “Never”, 2 is “Rarely”, 3 is “Often”, 4 is “Regular” and 5 is “Always”
- For questionnaire in external factor, motivation and persistence parts: scale ranging from 1 is “Strongly Disagreed” to 5 “Strongly Agreed”
- Individual Backgrounds mention questions related age, gender, marital status, seniority, occupation, major

### ***C. Data collection and Methodology***

For this study, convenient sampling is suitable selection from categories for non probability sampling designs. According Joseph et al.(2009), convenience sampling is defined “a method in which samples are drawn based on convenience”. The surveys were distributed directly in graduation celebration, alumni party, email and phone.



In order to ensure the validity and reliability of variables, this study used EFA and Reliability test. The purpose of reliability test analysis is to determine whether data are trustworthy or not. Reliability investigation through Cronbach's alpha as a method that is frequently used that assessing the consistency of the entire scale. Exploratory factor analysis is a technique to evaluate interdependence. It studies all interrelationships without defining variables to be dependent or independent. Moreover, multi regression and simple linear regression technique were used to answer four research questions.

#### ***D. Reliability and Factor Analysis***

*Table 2. Summary Reliability test*

<b>Factors</b>	<b>Number of Items</b>	<b>Cronbach's Alpha (N=403)</b>
Learner Motivation(LERNMOTI)	7	.859
Learner Persistence (LERNPERSI)	5	.840
Internet - Online Communication Skills (INONCOSK)	7	.885
Time Conflict (TIMECON)	6	.867
Family Support (FAMSUP)	5	.800
Organizational Support (ORGSUP)	4	.864
Time Management Skills (TIMASKI)	6	.737

According to table 2, the Cronbach's alpha of two dependent variables and five independent variables have acceptable or good Cronbach's alpha. It proves that those factors had acceptable reliability and internal consistency among data was good. Hence, those variables were remained in this study.

According to Gerbing & Anderson (1988), the Kaiser-Meyer- Olkin Measure of Sampling Adequacy (KMO) value has to be .60 or above. As the results, the Kaiser-Meyer- Olkin Measure of Sampling Adequacy (KMO) value was .779 for the group of independent variables and .843 for the group of dependent variables that above the value of .60, indicating that the present data was suitable for principal components analysis. Similarly, Bartlett's test of sphericity was significant ( $p < .001$ ), indicating sufficient correlation between the variables to proceed.

#### 4. RESULT

Table 3 interpreted the significant level and correlation coefficients between five independent variables that included Internet and communication online skill, Time conflict, family support, organization support, time management skills and learners' motivation and learners' persistence.

Table 3. Descriptions and Variables' Correlations

	<b>LERNPERSI</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
1. INONCOSK	.210*	1.000					
2. TIMECON	.037	-.037	1.000				
3. FAMSUP	.434*	.296*	.036	1.000			
4. ORGSUP	.215*	.070	.184*	.296*	1.000		
5. TIMASKI	.327*	.299*	.095*	.328*	.284*	1.000	
6. LERNMOTI	.509*	.234*	.070	.416*	.267*	.416*	1.000
<b>Mean</b>	4.08	4.20	3.34	3.94	2.82	3.46	3.75
<b>SD.</b>	.644	.664	.882	.709	1.028	.717	.679

**Note:** \* Significant level at  $p < .005$

##### A. Research Question 1

Table 4. Coefficients between IVs and LERNMOTI

<b>Variables</b>	<b>Standardized Coefficients (Beta)</b>	<b>t-value</b>	<b>Sig.</b>	<b>Correlations (Part)</b>
1. INONCOSK	.063	1.365	.173	.058
2. TIMECON	.018	.406	.685	.017
3. FAMSUP	.277	5.788	.000	.248
4. ORGSUP	.099	2.119	.035	.091
5. TIMASKI	.276	5.786	.000	.248

**Note:** Dependent Variable: LERNMOTI: Learner Motivation

- Predictors: INONCOSK, SCHECON, FAMSUP, ORGSUP, TIMASKI

- ANOVA:  $F(5, 397) = 29.688$ , Sig. = .000,  $p < .005$

- Model summary:  $R^2 = .272$

According to Ttable 4, there were significant relationships between the dependent variable, LEARNMOTI and four independent variables included INONCOSK, FAMSUP, ORGSUP, TIMASKI. In these significant influences,

LEARNMOTI had substantially positive correlation with FAMSUP ( $r=.416$ ,  $p<.005$ ) and TIMASKI ( $r=.416$ ,  $p<.005$ ). It meant that if learners receive more support from family or have better time management skill, they will have more motivation in learning process. Next, the ORGSUP and LEARNMOTI had moderate positive correlation ( $r=.267$ ,  $p<.005$ ). It can be understood that adult learner would have higher motivation if their organization support more. Finally, the INONCOSK had low positive with LEARNMOTI ( $r=.234$ ,  $p<.005$ ).

In order to explore the direct effects of the independent on learners' motivation, the result of multiple regression analyses showed that the learners' motivation was directly affected by FAMSUP ( $\beta = .277$ ), ORGSUP ( $\beta = .099$ ), TIMASKI ( $\beta = .276$ ). This means that every 1-standard deviation increase in family support, organization support and time management skill would lead to an increase in learners' motivation by .277, .099 and .276 units respectively when other factors were kept unchanged.

### B. Research Question 2 and Question 3

Table 5. Coefficients between IVs and LERNPERSI.

Variables	Standardized Coefficients (Beta)	t-value	Sig.	Correlations (Part)
1. INONCOSK	.050	1.050	.294	.046
2. SCHECON	-.002	-.051	.960	-.002
3. FAMSUP	.342	6.965	.000	.306
4. ORGSUP	.058	1.219	.223	.054
5. TIMASKI	.184	3.748	.000	.165

**Note:** Dependent Variable: LERNPERSI: Learner Persistence

- Predictors: INONCOSK, SCHECON, FAMSUP, ORGSUP, TIMASKI

- ANOVA:  $F(5, 397) = 23.941$ , Sig. = .000,  $p < .005$

- Model summary:  $R^2 = .232$

According to table 5, it was substantially positive correlation between LERNPERSI and FAMSUP ( $r=.434$ ,  $p<.005$ ). It means that if learners receive more support from family, the ability to persist in learning process is higher. Next, TIMASKI had moderate positive correlation with LERNPERSI ( $r=.327$ ,  $p<.005$ ). It means that the better time management skill adult learners have, they would persist in program longer. Continuously, it was low positive relationship between ORGSUP and LERNPERSI ( $r=0.215$ ,  $p<.005$ ). It means that the more support from organization, it could lead lowly affect to adult learners' persistence. The INCONONSK also had low positive correlation with LERNPERSI ( $r = .210$ ,  $p<.005$ ). It can be understood that Internet communication online skill had less affect with learner's ability to persist in program.

In order to explore the direct effects of the independent on learners' persistence, the result of multiple regression analyses showed that the learners' persistence was

directly affected by FAMSUP ( $\beta = .342$ ), TIMASKI ( $\beta = .184$ ). This means that every 1-standard deviation increase in family support, time management skill would lead to an increase in learners' persistence by .342 and .184 units respectively when other factors were kept unchanged.

Table 6. Coefficients between LERNMOTI and LERNPERSI

Variables	Standardized Coefficients	t-value	Sig.	Correlations (Part)
LERNMOTI	.509	11.842	.000	.509

**Note:** Dependent Variable: LERNPERSI: Learners' Persistence

- Predictors: LERNMOTI: Learners' Motivation
- ANOVA:  $F(1, 401) = 140.230$ , Sig. = .000,  $p < .005$
- Model summary: R square = .259

According to Table 6, the significant level and standardized coefficients between two dependent variables were displayed. Besides that, with  $r = .509$  and  $p < .005$ , it was significant relationship between Learners' motivation and Learners' persistence and it was strong positive between two dependent variables. This means that the higher level of motivation, adult learners had higher persistence.

### C. Research Question 4

As the results of multi regression analysis of the group of the independent variables and the dependent variable of LERNMOTI, the factors of family support, organization support and time management skill significant effected LERMOTI with  $\beta = .277$ ;  $\beta = .099$ ;  $\beta = .276$ , respectively. Meanwhile, LERNMOTI significant effected on LERNPERSI with  $\beta = .509$ . Hence, the factors of family support, organization support and time management skill made an indirect effect on learners' persistence through mediating variable of learners' motivation at (.141); (.050); (.140), respectively.

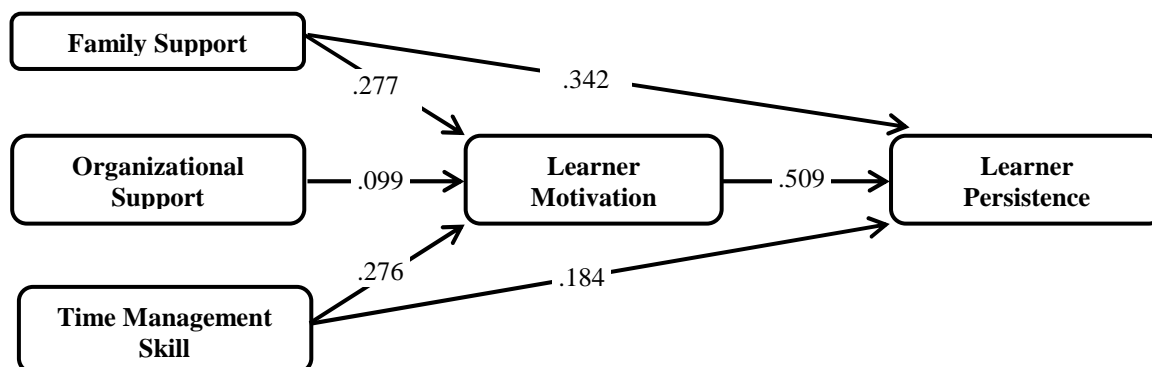


Figure1. Path diagram of learners' persistence model

**Note:** All coefficients in the model were significant at the .005 level

## 5. CONCLUSION

The purpose of this study aimed to find out factors of learners' motivation, study skills, family support, organization support and time conflict that have direct and indirect impact on ability to persist of adult learners. The study also identified the meaningful factors contributing adult learners' decision to persist so help program instructors or designers find a way to improve the learners' persistence rate.

Many authors promoted that motivation is one of the most frequently studied variables closely related to ability to persist of adult learners in e-learning contexts (Chyung, 2001; Doo & Kim, 2000; Levy, 2007, Erman & Fethi, 2006; Park, 2007; Park & Choi, 2009). Park, 2007 stressed that motivation is one internal factors leading to either dropout or successful completion of an online course. More research of Erman & Fethi, 2006; Park & Choi, 2009 proved that by communication with the motivation, persistence in online education can be improved. This study added additional evidence for the latter by showing the strongly positive correlation between learners' motivation and learners' persistence.

In agreement with prior researches (e.g., Park & Choi, 2007; Doo & Kim, 2000, Levy, 2007), the research commented that learners' satisfaction with e-learning course and find relevance or application to learner's job, especially in knowledge and experiences are main factors impact their learners' persistence. By adding real situation in lecturer or creating case studies in forum, the course will provide opportunities for learner applying their new knowledge. If possible, instructors should customize assignments and discussion topics based on learners' information based on learners' "educational and employment background, special interests, and goals they wish to attain particularly in the work setting". Moreover, assignments need be designed to help the adult learners gain a better understanding of how situations in work environments where the learners currently work or plan to work. Those will make them see the useful of the skills and knowledge obtained from the courses, feel satisfied and motive them continue persist in the course. In additional, in order to improve learner satisfaction to motive adult learners, the online courses should give some rewards as certificate, promotion, praise to learners.

As the results, family support also has been known to be crucial factor to adult learners' learning process in online education context because they are related with different roles in social life (Bean & Metzner, 1985; Tinto, 1993; Rovai, 2003; Park & Choi, 2009). Because adult learners are easily likely to drop out of online courses if they not receive support from their family so course manager or instructor need to consider the effect of this factor to learners' persistence. Even though it is difficult for course manager to control this factor however course designer or course administrator can help them stay in the course by providing alternative support. According to Graham, 1998, in some instances, the faculty can substitute for family support because the primary impact on adults often stems from involvement in relationships with faculty and in class related learning. By paying extra attention and providing internal support to help learners when they not receive from their family such as facilitate informal online chats through the course website, provide online access to a variety of service that focus on learners' need, organize periodical meetings of faculty and learners. In additional, it is essential to develop group projects and assignments that encourage students to develop relationships with other members of the learning community so they can not only explore knowledge but also find alternative support from peers.

As commented as one factors related to e-learning success (Watkins, 2004), time management skill plays the third important role in impact on learners' persistence. It is also consistent with studies of Zimmerman (2008) that time management skills, one dimension of self-regulation, are very important in online learning. Hence, course designer need to thinks the way to help adult learner perceive and increase their skill. Before the course, administrators and instructors may provide a handbook or short course to guide them plan for studying and manage time effectively. At the beginning of each semester, course administrator can send the overview schedule via email and use automatic email to reminder the important time (assignment deadline, study tasks) every week. It not only helps them in planning for studying but also create the support that motive them learning and persist in the course.

Not received in many researches of the role towards learners' persistence (Park & Choi, 2009), in this research organization support still has effect on learners' persistence even though the  $\beta$  is quite low only 0.050 so it need additional empirical evidence was needed to support the conclusion.

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# Student participation in academic activities

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Universitas Terbuka (UT), a higher education institution which fully implements distance education system, is determined to optimally serve its students by continuously increase the services both administratively and academically. UT students are required to implement self-directed learning while UT provides learning support to facilitate learning process. The learning support consists of academic consultation and tutorial in the forms of face-to-face-tutorial and on-line tutorial. Students who find difficulties in mastering learning contents are advised to seek these learning support. Analysis on students' participation in learning support, students' loyalty towards UT, and students' roles in disseminating goodwords about UT is reported in this paper. It is expected that students with high level of participation in academic activities will have high loyalty toward UT and at the end the students will disseminate goodwords about UT. The research was conducted in January-June 2013 in 23 out of 37 UT Regional Centers throughout Indonesia with 765 students serve as respondents. Data were obtained from questionnaires. Data gathreed were analyzed using descriptive statistics. The result showed that students have high participation rate where around 80% of students were involved in tutorial activities, both in face-to-face or online tutorials. Meanwhile, around 90% of respondents recommended UT to their friends and encouraged their friends to join UT.

Keywords: academic participation, academic services, loyalty, Universitas Terbuka

## 1. Introduction

Generally, the academic activities that students should do are registration, studies and examination. Then universities will provide the services in order to maintain the academic performance of the students. If the decreasing performance caused by the service aspect, then it would affect the confidence and pride level of the students toward their universities, which in the end the students will not re-register or recommend the universities to the public, in other words, the participation or the loyalty towards universities is not good.

Universitas Terbuka, using the distant learning system, provides the services which generally comprises of registration service, supply of learning material, distribution of teaching material, studying assistance and providing examination. Registration services including personal data saving, data of major selection and data of course selection. Registration performed at certain period in each semester, could be done individually or in the study groups, served by Regional Office for students who came directly or through website for students who perform online registration. Meanwhile, the supply of learning material services is performed by UT through supplying self-teaching designed materials which has 'self contained' and 'self instructional' feature. The learning materials are the main source of learning for Universitas Terbuka's students.



The learning materials distribution service is performed by online bookstore. In order to make students easier to get learning materials. Universitas Terbuka not obliged the students to buy the learning materials. They could borrow from other students or their seniors.

Learning support services held by providing face-to-face tutorials and scheduled online tutorial. Also there are radio and television program, online library and online based enrichment learning course. With that, students are free to choose whether to study individually or in group. In the mean time, examination service is regularly held in the classroom at the same time in all examination locations. As well as the online examination in the Regional Offices.

Universitas Terbuka is striving to serve the students as good as possible with continuous improvement and increasing the mode of services. With these things, hopefully it can affect the performance of the students and in the end increasing the loyalty of the students.

According to Hennig-Thurau, Langer, and Hansen (2001), consumer loyalty is generally accepted as critical factor in the success of long term service in the service company. They developed the student's loyalty model by amalgamating marketing in the service context. The result of the research is indicating that student's loyalty is determined by the relationship quality dimensions as the main factor. As well as the model informed that student's integration in the university's system as the primary factor and the external commitment as the secondary factor. In addition, the quality of teaching and student's commitment in the institution are the important factors in student's loyalty. They also found that there are differences in the student's loyalty among studying programs.

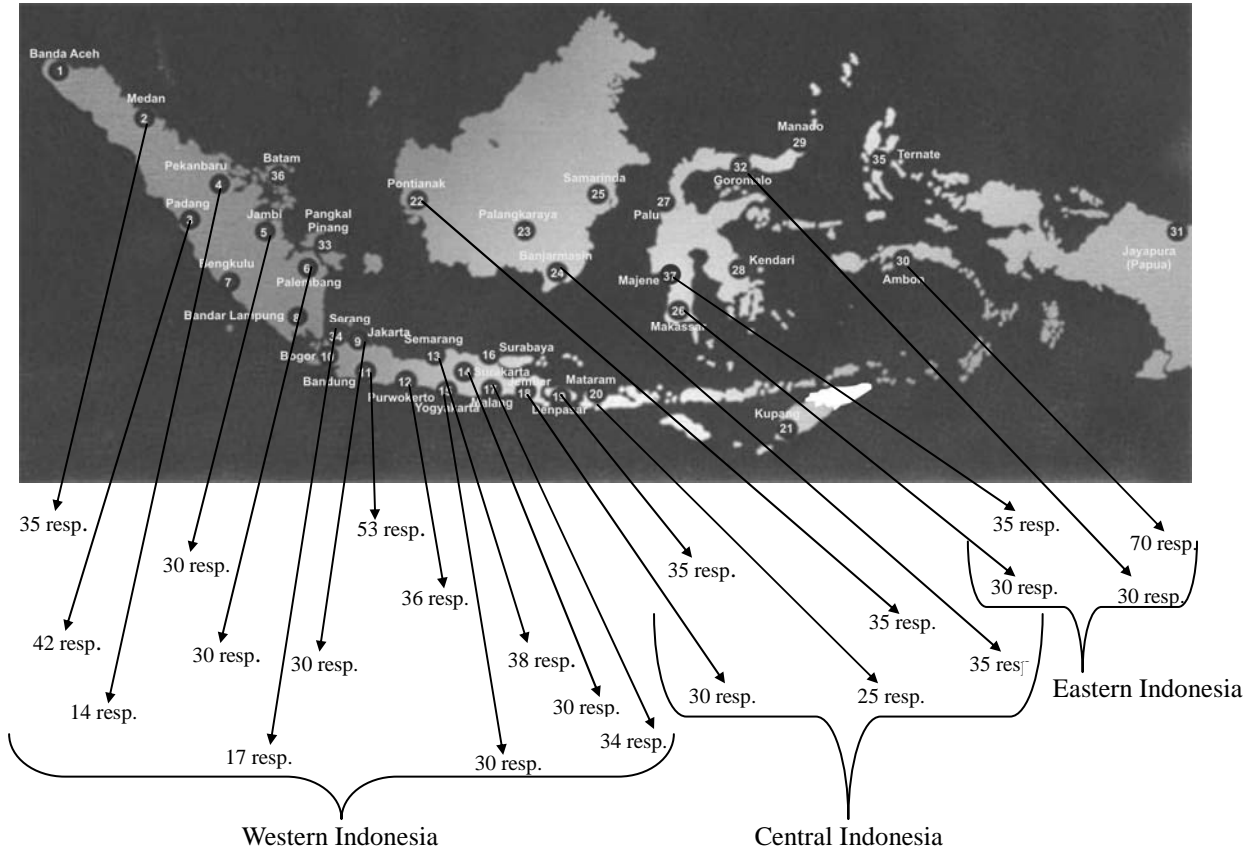
The result of participation in academic activities and loyalty measure of students is the indicator of how successful Universitas Terbuka is. Therefore, the research about student's participation in the academic activities is important to do for the improvement in the service quality. Nonetheless, the result of the education like the good marks, the satisfaction of students and persistence, are surely affected by the effort of the students. The activities as the tutor interaction to the students, collaboration between the students directly or remotely (Brown, 2006). Therefore the participation of the students either in the studying activities in the class or in the discussion will directly affect the result of their studies.

According to Tinto (1975, 1993), the commitment of students mostly determined by how much the integration to the University's system. The integration could be done in two way, first is by the active participation in the university and involved in the committee (academic integration) and second, through social activities among students (social integration).

## **2. Methodology**

The source of data in this research is using the form of survey, the population is the registered UT's students in January-July 2012. The sample is taken purposively from 23 UT Regional Offices (ROs) that represent western, middle and eastern part of

Indonesia. The 23 UPBJJ are Medan, Batam, Padang, Pekanbaru, Jambi, Palembang, Jakarta, Serang, Bandung, Purwokerto, Semarang, Surakarta, Yogyakarta, Pontianak, Banjarmasin, Malang, Jember, Denpasar, Mataram, Makassar, Majene, Gorontalo and Ambon (Figure 1).



\*Resp.=Respondents

Figure 1. Samples of UT ROs in Three Parts of Indonesia and Number of Respondents

The questionnaire about the satisfaction is using Likert Scale from 1 to 4 according to the element of service that provided by UT, 1 = Strongly Disagree; 2 = Disagree; 3 = Agree; 4 = Strongly Agree; for the respondent that did not fill the questionnaire, the value will be 0. 1) Registration Service, determines how routine and how intensive the students in using the registration; 2) Learning Material Supply Service, determine the quality of learning materials; 3) Learning Support Service, determine of how independent the students in doing learning; 4) Examination service, are the students following the examination provided by UT? 5) Loyalty towards Universitas Terbuka's service, measure the degree of student's willingness to keep using UT's services and recommend UT to their friends. To describe the data descriptive statistic is using here in form of frequency tables.

### 3. Results and Analysis

#### 3.1. Respondents' Characteristics

Figure 2 depicts respondents' characteristics, that is UT students from 23 Regional Offices. In the Table 1, the total number of respondents is 731 student. It could be seen that there are 4 Regional Offices that got less than 30 respondents and 11 Regional Offices that got more than 30 respondents. The female respondents are 375 students and male respondents are 350 students. There are 6 respondents that did not fill their gender.

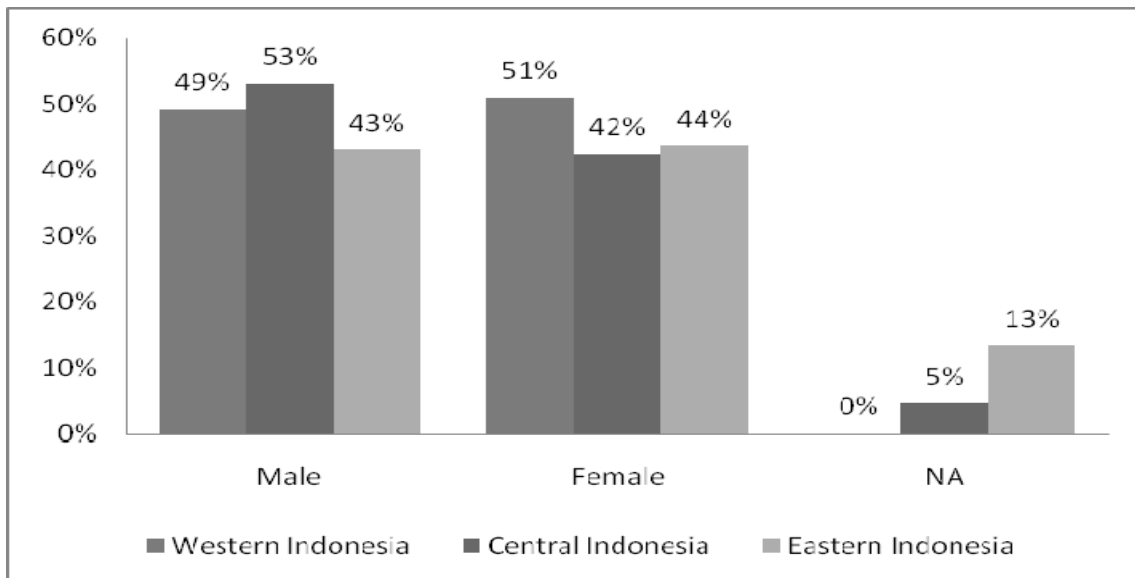


Figure 2. Distribution of Respondents based on Sex

Table 1, Figure 3, and Figure 4 showed the dispersion of age and profession of the respondents. The age range is from 20 to 29 years old followed by 30 to 39 years old age category. The 20 to 29 years old is the normal age to finish the university education, the 30-39 years old category is mostly consist of the professionals that want to or need to finish their studies for the matter that related to work. Table 2 also shows that the biggest group already works in the private sector or entrepreneurship. The next biggest group is the people who working as the government officer. This shows that most of the UT's students already working.

Table 1. Distribution of Respondents based on Age and Profession N=731, (%)

Age (Year)	Government	Private and Entrepreneur	Other	NA
< 20	0,00	1,64	2,05	2,05
20 - 29	7,52	25,58	14,36	6,29
30 - 39	8,89	10,81	2,19	3,56
40 - 49	6,98	1,78	0,96	0,96
> 49	2,74	0,55	0,27	0,68

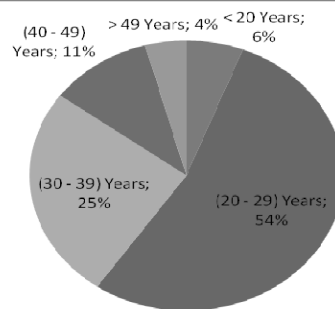
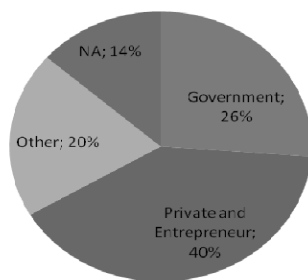


Figure 3. Distribution of Respondents based on Employment (N=731)

Figure 4. Distribution of Respondents based on Age (N=731)

### 3.2. Students' Perceptions towards UT's Academic Services

The answer of respondents to the questions asked related to the services is shown on Table 2. There are 11 Questions that represent the participation of students toward UT.

Table 2. Result of The Questionnaire

No.	Statement	Respondents' Perception* (%)				
		NA	1	2	3	4
1	Registration Services					
	• I am routinely register	0	2	4	53	22
	• I do register myself	1	2	9	49	39
	• I do registration in the begining of the period	0	1	6	61	32
2	Learning Material Supply Services					
	• UT's Learning materials are easy to learn	1	3	16	61	19
3	Learning Material Distribution Services					
	• I have the materials for the course registered	1	2	12	52	33
	• Materials are easy to obtain	0	2	16	60	22
4	Learning Support Services					
	• I am actively doing self study	1	2	10	58	29
	• I am actively following group study	1	5	27	48	19
	• I am actively following face-to-face tutorial	0	10	27	35	28
	• I am actively following online tutorial	1	7	31	40	21
5	Examination Services					
	• I am following online examination	2	15	41	31	11

\* NA =Not Answering; 1= Strongly Disagree; 2=Disagree; 3= Agree; 4=Strongly Agree

Most of the students are routinely register, we could see that 53% says they are agree that they routinely register and 22% are strongly agree. Most of the students are doing registration by themselves, about 49% are agree and 39% are strongly agree. Students are mostly register themselves in the beginning of the period 61% are agree and 32% are strongly agree.

About 80% of the students stated that UT's materials are easy to learn, which 61% agree and 19% strongly agree. The UT service that provided self contained and self instructional materials are well received by students.

The participation rate towards the distribution of materials are agreed by 87% of the students that have materials for registered course, then 72% of the respondents agree that the materials are easy to get. The materials are the main resource for studying. It supposed to be 100% of the students having the materials, then there are 13% students that required the materials for the registered course. However Universitas Terbuka does not obliged their students for having the materials. Students could borrow or buy the used materials.

The participation of the respondents to the learning support service which is about 72% that agrees. About 97% of the students perform individual studies, 67% is agree that they are doing group studies. About 63% follows the face-to-face tutorials and 61% agree that they are following online tutorials and about 35% of them not following either face-to-face tutorial or online tutorial. We could see that there is a high participation is pretty high. UT's students are everywhere including places that unable to be reached by transportation or telecommunication means. This kind of students hard to follow the tutorial, therefore UT does not oblige their students to follow the tutorials.

The online examination was just provided in the recent years. Even though it was limited for about 40% of the course. It could be understood that the examination services only agreed by 42% of the students. This number is expected to be higher in the next years as the students need to be more socialized about online examinations.

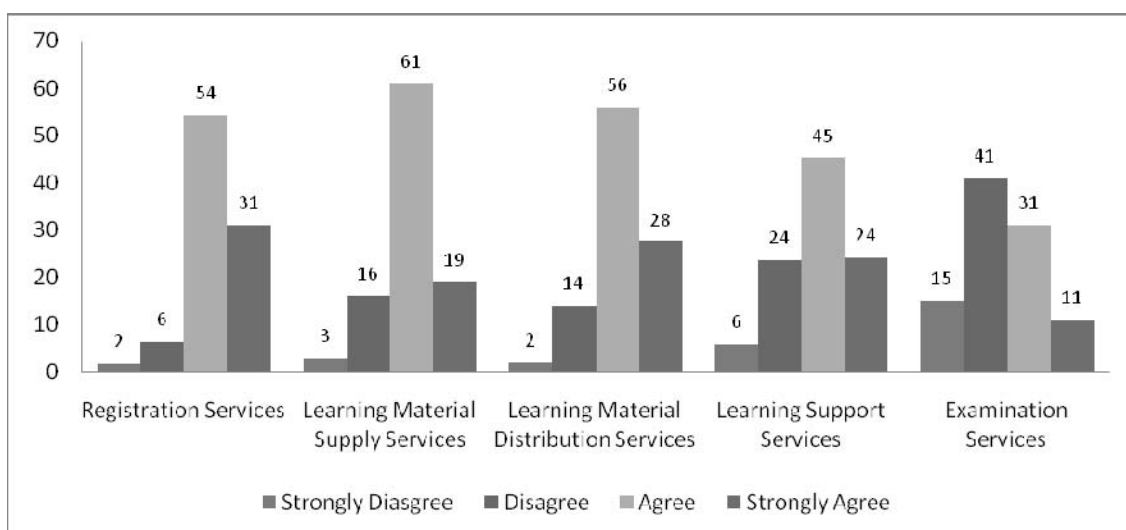


Figure 4. Resondents' Perceptions on UT's Academic Services

### 3.3. Students' Loyalty.

The answer of respondents to the questions asked related to the student's loyalty is shown on Table 3. There are 3 Questions that represent the participation of students toward UT.

Table 2: Student's Loyalty

NO.	QUESTIONS	ANSWERS (%)				
		NA	1	2	3	4
1	I will continue my master at UT	3.6	6.4	20.5	53.1	16.4
2	I will give information about UT to other people	1.0	1.2	3.6	60.7	33.5
3	I will invite the others to register to UT	0.8	1.9	7.5	57.2	32.8

\* NA =Not Answering; 1= Strongly Disagree; 2=Disagree; 3= Agree; 4=Strongly Agree

For UT students that will continue their master study, about 69.5% want to study in the UT's master program. Also more than 90% of respondents already tell their friends about UT. They also invite other people to be UT students. This information is parallel with the data obtained from BAPM UT that most of the students obtained information about UT from friends.

## 5. Conclusions and Suggestions

UT students have high participation rate. About 80% of students involved in the either online or direct tutorial. 90% selected respondents pass the information about UT to their friends. They also ask their friends to be UT students.

UT need to improve the online examination service because students could see directly how many questions that could be answered and predict their score. Next is the online examinations are held at different times than the regular examination time, students could freely re-register the courses if the time are not matched. The improvement could be done by adding the number of the course that the examination could be done online, increase the capacity of examination venue, increasing the day of online examination and socialize to the students.

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# **Students' satisfaction and perceived attainment in the use of an online discussion forum: A follow-up study in the OUHK**

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## **Abstract**

Online discussion forum is widely adopted both in distance learning courses and conventional face-to-face classroom (Spatariu, Hartley & Bendixen, 2004). It is generally believed that with the aid of this online communication channel, knowledge can be critically constructed, validated and shared among learners and their teachers (Knauka & Anderson, 1998). The Open University of Hong Kong (OUHK) has integrated online learning components into her distance learning programmes since 1998, and discussion forum is one of the major channels of communication between students and their tutors apart from regular face-to-face tutorials. However, a number of internal studies show that the participation rates of both students and tutors in the discussion forum are far from satisfactory (e.g. Tsang et al. 2002, Choi 2006, 2007).

In the past decade, a short online training course has been conducted regularly for newly appointed tutors in OUHK, in order to promote the use of this online discussion tool. However, a study to investigate the engagement of tutors on discussion board finds that tutors completed the training course do not participate actively in the discussion forum (Choi 2013). The present study is designed to examine, from students' perspective, the effectiveness of discussion forum in OUHK after all the promotional effort. The theoretical framework adopted in the study is the Community of Inquiry model (Garrison, Anderson & Archer 2000), which argues that learning through online conferencing occurs within an online community through the interaction of cognitive, social, and teaching presences. Students' level of satisfaction, perceived attainment, and the three presences perceived are examined and compared with those in an earlier study in OUHK (Choi 2007). Data will be collected through an online survey, and current students in OUHK are invited to participate in the study.

Collected data show that the cognitive presence, social presences, student satisfaction and perceived attainment in discussion forum are all significantly lowered. The unexpected phenomenon is then investigated and recommendations to enhance the use of discussion forum are proposed.

**Keywords:** discussion forum, community of inquiry, student satisfaction, perceived attainment

## **1. Introduction**

The advancement of computer technologies and the popularity of Internet have already changed the way distance education is delivered. In traditional correspondence courses, interaction between students and their teachers is very limited. With the aid of various types of computer-mediated communication (CMC) tools, distant learners can now communicate with their teachers and fellows anytime and anywhere. Communication tools like e-mail, chat-room, and asynchronous conferencing are widely used and the constraints owing to geographical distance has been greatly reduced. In recognizing the influences/impact brought by this new communication technology, CMC has been acknowledged as the tool leading to a new generation of distance education (Moore & Kearsley 1996, Garrison 1997).

Some people might believe that face-to-face interaction is a better teaching and learning channel when compared to text-based computer conferencing. Face-to-face interaction is generally fast-paced, spontaneous, and less structured. Moreover, it usually goes with rich non-verbal and paralinguistic cues, such as gesture, facial expression, and specific tone of voice. However, Garrison et al. (2000) argue that in spite of these potential deficiencies, computer conferencing has some advantages as a learning medium. Since asynchronous interaction via CMC provides more time for reflection, it is preferable when dealing with higher-order cognitive learning.

In fact, this kind of text-based computer conferencing is highly recommended by most of the researchers in the field of distance and online education, for example, Duffy, Dueber & Hawley (1998), Sloffer, Dueber & Duffy (1999) and Garrison & Anderson (2003). They argue, after empirical studies, that computer conferencing can effectively promote critical thinking among learners. This kind of critical thinking is often argued to be at the heart of higher education (Laurillard, 1993; Marshall, de Reuck & Lake 1997).

Nevertheless, online discussion forum is widely adopted both in distance learning courses and conventional face-to-face classroom (Spatariu, Hartley & Bendixen, 2004). It is generally believed that with the aid of this online communication channel, knowledge can be critically constructed, validated and shared among learners and their teachers (Knauka & Anderson, 1998).

## **2. Theoretical Framework**

In this study, the theoretical framework adopted is the Community of Inquiry (CoI) model suggested by Garrison, Anderson and Archer (2000).



The notion of community of inquiry was originated by Lipman (1991), who refers it as an essential context to facilitate critical thinking and deep learning. In examining the teaching and learning through online asynchronous, text-based computer conference, Garrison, Anderson & Archer (2000, 2001) argues that a “community of inquiry” is extremely valuable for higher-order thinking. In such an online community, learners construct and reconstruct experience and knowledge through critical analysis of subject matter, questioning, and challenging of assumptions. In the mediated communication setting, social interaction, cognitive thinking and teaching support can then be reflected by social, cognitive and teaching presence in the CoI model, and learning occurs within the community through the interaction of three presences (Garrison, et al. 2000, 2001).

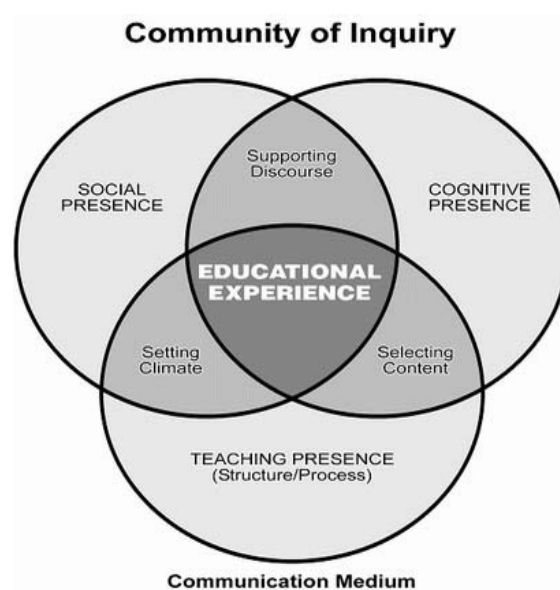


Figure 1: Community of Inquiry (from Garrison et al. 2000: 88)

Cognitive presence is “the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication” (Garrison et al. 2000:89). Social presence is defined as “the ability of participants in the community of inquiry to project their personal characteristics into the community, thereby presenting themselves to the other participants as ‘real people’ ” (Garrison et al. 2000:89). Teaching presence consists of two general functions, which are performed mainly by teachers. The first function is the “design of educational experience”, which includes the “selection, organization, and primary presentation of course content”, and “the design and development of learning activities and assessment.” The second function is ‘facilitation’. Teaching presence is “a means to an end—to support and enhance social and cognitive presence for the purpose

of realizing educational outcomes” (Garrison et al. 2000:90).

Garrison et al. (2000) argue that in a community of inquiry, learners learn through constructing knowledge by collaborative discussion. Garrison and Archer (2000) refer it as a “collaborative constructivist perspective” on teaching and learning transaction, and they regard educational experience as a collaborative communication process for the purpose of constructing meaningful knowledge. The underlying assumption of this theoretical perspective is that knowledge is motivated, organized, and communicated in the context of social interaction. Based on this theory, the pedagogical value of computer conferencing to support higher-order educational objectives will depend on its ability to facilitate open communication and reflective discourse. An empirical study in OUHK confirms that the cognitive presence, social presence and teaching presence are contributing factors to students’ satisfaction on the use of discussion forum and their perceived attainment (Choi 2007).

### **3. Use of discussion forum in OUHK**

The Open University of Hong Kong (OUHK) has integrated online learning components into her distance learning programmes since 1998, and the “discussion board”, an online asynchronous discussion forum, is one of the major channels of communication between students and their tutors apart from regular face-to-face tutorials.

When OUHK recruited her first cohort of students in 1989, teaching and learning are conducted via print-based learning materials and regular face-to-face tutorials. After the incorporation of online learning support in 1998, nevertheless, the original provision of learning materials and face-to-face tutorials remain unchanged. Both face-to-face tutorials and online forum are not compulsory in most of the courses in OUHK, and this policy provides the greatest learning support as well as flexibility to students. The provision of online discussion forum is expected to further enhance teacher-student interaction, and it could better support those students who cannot attend face-to-face tutorials.

In fact, many conventional universities adopt blended learning and introduce discussion forum to support their face-to-face teaching. However, a number of internal studies reveal that students in OUHK are not that enthusiastic towards the discussion board and the participation rates of both students and tutors in the discussion board are far from satisfactory (e.g. Choi and Tsang 2001, Choi 2006, 2007). In a study investigating students’ participation in discussion board, it is revealed that each student

has posted less than 4 messages ( $\bar{x} = 3.88$ ) in the discussion board, about 6 months after his/her course was started (Choi 2007). An earlier OUHK-based study has been conducted to investigate the possible factors affecting the participation rate in the online communication. Correlation study shows that the number of postings by tutor is significantly correlated to students' logins ( $r=0.762, p < 0.001$ ) and number of postings ( $r=0.782, p < 0.001$ ) (Tsang, Choi & Tam 2002).

Another OUHK study reveals that students do not perceive a strong sense of any presences of the CoI model. In a 5-point summative scale to indicate the various presences, the mean scores of cognitive, social and teaching presence are 2.92, 2.70 and 2.69 respectively (Choi 2007). The same study shows that students are also expecting support from their tutors via discussion board, but tutors' participation in the tool is disappointing. Students are not motivated to engage in the online communication when they find that their tutors are absent (Choi 2007). In fact, factors affecting students' participation in discussion forum have been widely explored, and tutors' engagement is always one of the major factors (e.g. Volery and Lord 2000, Tsang et al. 2002).

In order to better utilize the discussion forum as a supporting tool, OUHK has begun to run a short online course, namely Online Tutor Training (OTT), since 2003, in order to familiarize new appointed OUHK tutors with the online learning platform and the basic skills of conducting online tutorial via discussion board. Course evaluation surveys review that tutors are generally satisfied with the short course and find it useful. For example, in the course evaluation in the second semester of 2012, 71% of the respondents are satisfied or very satisfied with the OTT course, and 86% of them claim that they will definitely or very likely adopt what they have learned in their own tutorial (ETPU 2012).

However, a study especially designed to examine the tutors who have completed the OTT course from 2008 to 2013 reveals that tutors are still not very active in the discussion board. Over 30% of the respondents login the discussion board 0 to 4 times in an average month, which means that they log-in the discussion board only once a week or less. Another 39.7% of respondents login 4.1 to 8 times a month (Choi 2013). Therefore, almost 70% of the respondents are non-active users of the discussion forum, and they engage into the communication channel less than 2 times a week. The same study reveals that 29.4% of the respondents have never triggered a dialogue (or discussion) in the discussion board, and that means they just, if ever, passively use the discussion board to answer students' questions or queries. Another 32.4% of respondents post one triggering message or less in a month on average. Therefore, more

than 60% of the respondents are not actively using the discussion board as an tutorial tool (Choi 2013). A correlation analysis reflects that tutors' attitude towards the use of discussion forum is not significantly correlated to the number of messages posted. That means many of the tutors believe that the communication tool is useful, but they just do not actually use it.

After the study in 2007, we have not further investigated the effectiveness of the discussion board, from students' perspective. The present study is a follow-up study to the earlier studies, and aims at evaluating the use of discussion board in OUHK in the perspective of students.

#### **4. Research questions and methodology**

The purpose of the present study is to investigate the effectiveness of the use of discussion forum in OUHK in 2014, in terms of the three presences in CoI model, as well as student satisfaction and their perceived attainment.. The result will then be compared with the similar study in OUHK (Choi 2007), and see if there is any improvement after the years of OTT training for tutors.

##### *Research Questions*

The two research questions are:

1. Are there any differences between OUHK students in 2007 and 2014 in terms of their perceived cognitive presence, social presence, teaching presence in the discussion board?
2. Are there any differences between OUHK students in 2007 and 2014 in terms of their satisfaction and their perceived attainment in the use of discussion board?

##### *Design of questionnaire and data analysis*

To answer the first question, an online survey is conducted to measure the various presences of the CoI model in the discussion board. The "presences" reviewed by the questionnaire are those perceived by the respondents, after some participation in the discussion board in their distance learning courses. Students' satisfaction towards and perceived attainment through online forum are also measured. The result is then compared with the result in Choi (2007) by independent-samples t-test. The questionnaire in the present study is basically the same as the one used in Choi (2007). Summative scales of each of the 3 presences are derived from the various indicators of the presences in Garrison and Anderson (2003). Cronbach alpha coefficients of the three

scales are all higher than 0.9, and the internal consistency of the scales are satisfactory. The scales of satisfaction and perceived attainment are also validated (Choi 2007).

In order to explore the reason behind the low participation of the students in OUHK, an open-ended question at the end of the online questionnaire is used. The open-ended question simply asks respondents to give opinion to the use of discussion board, and it provides a nondirective prompt for students to express their attitude and opinion freely toward the use of the communicative tools. The responses will be analyzed in a qualitative approach, and the focus is on students' opinion towards the use of the online forum as a learning support.

### *Sample*

Subjects of the present study are all undergraduate or postgraduate students in the Open University of Hong Kong (OUHK). A total of 45 courses from the 4 Schools in OUHK, i.e., School of Arts and Social Sciences (A&SS), School of Education and Languages (E&L), School of Science and Technologies (S&T), and School of Business and Administration (B&A), were selected. The sample of courses was basically a convenient sample. All the 45 courses selected were 10-credit 2-semester courses that began in April 2014. About a quarter of them are delivered in Chinese, and the rest in English. When the students were invited to respond to the online questionnaire in mid-July 2014, the semester has started for more than 3 months. The total number of students in the 45 courses is 2532. In the similar survey in 2007, a total of 162 respondents from 34 courses have made their responses (Choi 2007).

## **5. Result**

The online questionnaire had been posted for 2 weeks, and a total of 338 respondents filled the questionnaire. The response rate for the survey was found to be 13.35%. The comparatively low response rate is in line with the earlier studies, in which return rates of students varies from 11.16% to 19.2% (see Choi & Tsang 2001, Tsang et al 2002, Choi 2006, 2007). It can be explained by the fact that students in OUHK have regular face-to-face tutorial and participation in the online forum in OUHK courses is entirely voluntary, so the participation on the discussion board is very much affected.

When the various presences, students' satisfaction and perceived attainment are compared between the students in Choi (2007) and the present study by independent-samples t-test and correlation analysis, the result is summarized in Table 1 and 2.

Table 1 Independent Samples Test of various dependent variables

	Year	N	Mean	Std. Deviation	Std. Error Mean
Cognitive presence	2007	162	2.9248	0.78435	0.06162
	2014	338	2.7153	0.88751	0.04827
Social presence	2007	162	2.6958	0.72684	0.05711
	2014	338	2.5328	0.85752	0.04664
Teaching presence	2007	162	2.6869	0.84244	0.06619
	2014	338	2.8156	0.94702	0.05151
Satisfaction	2007	162	3.7432	0.90009	0.07072
	2014	338	3.1651	0.98527	0.05359
Perceived attainment	2007	162	3.2469	0.95196	0.07479
	2014	338	2.8683	0.96800	0.05265

Table 2: Pearson product-moment correlation coefficients between various presences, satisfaction and perceived attainment (N= 338, 2-tailed)

Components of Dependent Variables	Cognitive presence	Social presence	Teaching presence
Perceived attainment	0.741**	0.653**	0.797**
Satisfaction	0.676**	0.518**	0.711**

\*\* $p < 0.01$

From Table 1, it is obvious that when compared with the data collected in 2007, the mean scores of all the variables in the recent survey are lowered, except the one for teaching presence. While the small increase in teaching presence is not statistically significant ( $p=0.126$ , 2-tailed), the decreases in all the other 5 variables are all statistically significant ( $p < 0.05$ , 2-tailed). The significant levels of the differences in satisfaction and perceived attainment are even lower than 0.01.

To answer the first research question, we can conclude that the perceived cognitive presence and social presence, are both decreased from 2007 to 2014, while the level of teaching presence remains. For the second research question, the mean scores of students satisfaction and their perceived attainment in this study are both severely decreased. For student satisfaction, it drops from 3.7432 to 3.1651, a difference of 0.5781. The satisfaction level of students is now only slightly higher than 3, the mid-point of a 5-point Likert scale. For perceived attainment, it drops from 3.2469 to

2.8683, a difference of 0.3786. The perceived attainment of students, therefore, changes from a positive to negative view.

Table 2 shows clearly that all the three presences in the CoI model are significantly correlated to students satisfaction and their perceived attainment. The result is parallel to earlier study in 2007, in which both correlation analysis and multiple regression analysis reveal that the 3 presences in a way determine students' satisfaction and perceived attainment (Choi 2007). The decrease in two presences could explain the drop-off of students' satisfaction and perceived attainment.

An earlier study (Choi 2013) reveals that the regular online tutor training in the past years does not enhance tutors' engagement in the discussion board, and the present study further shows that neither does it improve the effectiveness of the online communication tool in the eyes of the students in OUHK.

In the open-ended question at the end of the questionnaire, many students agree that the discussion board can be a useful learning support, but both tutors and their fellow coursemates are not actively participating in the online communication platform. Some tutors do not initiate any discussion in the online forum and make it only a channel to deliver learning materials, such as PowerPoint files and documents. Some tutors does not response to students' question promptly and it further hinders the engagement of students. All these responses reflect that the low level of cognitive, social and teaching presences in the discussion board are also important factors that diminish the interest of students in participating in the online interaction.

## **6. Conclusion and discussion**

There is little doubt that an online discussion forum can be used to enhance interaction between learners and their tutor, and among learners themselves. Discussion forum is widely used in distance learning programmes as well as conventional campuses. In OUHK, however, both tutors and students are not actively engaged in the online discussion forum although both parties acknowledge that the communication channel can enhance their interaction and serve as a useful learning support (Choi 2007, 2013). Most of the tutors have even completed an online tutor training course and mastered the basic skills of online tutorial, but it does not practically enhance their engagement in the discussion forum.

There could be a number of reasons which repress the enthusiasm of using the discussion forum in OUHK. First, there are frequent face-to-face tutorials for OUHK distance learning students, and tutors and students may not consider the interaction

through online forum necessary. Second, the interaction in the discussion forum is not counted in the formal assessment, so students are quite reserved in spending extra time and effort in it.

However, all the internal studies in OUHK reveals that students' engagement in discussion forum will be enhanced by both tutor's participation (Tsang, Choi & Tam 2002, Choi 2007) and the level of cognitive presence, social presence and teaching presence (Choi 2006, 2007 and the present study). The engagement of tutors and their online teaching skills indeed play a vital role in the success of online discussion forum. In order to fully utilise the discussion forum to enhance collaborative learning and higher-order thinking, further incentive and training for tutors might be necessary. The following suggestions are worth considering:

- The content of the Online Tutor Training course, after years of implementation, can be revised and enriched. It is suggested that the various presences if the CoI model can be incorporated into the OTT course, so as to better equip novice tutors to master the skills and strategies to enhance cognitive, social and teaching presences.
- Tutors' participation in the online forum, just like their performance in face-to-face tutorials, could be monitored and become part of their appraisal.
- In order to guarantee timely online tutor support for the learners in need, a specific "online tutor" can be hired to take care of the discussion board. Online tutor should be responsive to students' questions and provide specific online tutorials for those who cannot attend face-to-face tutorials or require supplementary learning support.

Successful teaching and learning online involves not only the tutors, learners' participation is also critical. Some students do not actively engage in the discussion forum simply because they do not acknowledge the benefit of it. A major portion of the distance learners in OUHK are school leavers and they may have little, if any, knowledge about the use of online discussion forum. Training sessions about the advantages and practical use of discussion forum can also be provided for new distance learners, and this may help them better understand the basic features and benefit of the discussion board as a learning tool.

In many distance learning programmes around the world, the engagement of online discussion forum is included in students assessment, and it is a strong incentive to motivate the students to actively participate into the online discussion. Of course, the use of discussion forum is a means rather than ends, the proposal of including online engagement as part of the assessment should be justified.



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# **The perceived effectiveness of weekly announcements in the provision of learning support to sociology students**

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## **Abstract**

Announcements are considered as important source in provision of academic support to the students. Announcements assist students to get information about the university learning mechanisms, courses and other time management skills, which may help them to make their learning smooth and pleasant. In this context present study documents the perceived effectiveness of Weekly Announcements posted for Sociology students of Virtual University of Pakistan enrolled in semester Fall 2013. An online survey was conducted from the students of Sociology enrolled in semester fall 2013. Total 399 students respond the questionnaire. For analysis purpose descriptive statistics were used. Preliminary results of the study indicate that students perceived weekly announcements favorable for their learning process. Specifically, the demos posted regarding LMS use for performing different activities in weekly announcements were considered as more auspicious element. Overall students were satisfied with the initiative of weekly announcements in Sociology courses and perceived this step helpful in their subjects' learning.

**Key words:** Students support services, Weekly Announcements, perceived effectiveness, e-learning

## **Introduction**

Provision of learning support to the students in e-learning is very crucial as in e-learning mode students interact through mediated communication that sometimes restricts the students learning process due to communication gap between instructor and student (Wright, 1991; Simpson, 2000; Thorpe, 1988). In order to overcome this deficiency, academic support is provided through different means such as content related tutoring, supplemental information provision, e-mail mentoring, in-time information provision and tips of learning through announcements etc. This academic support is specifically necessary in order to provide ease to newly enrolled students who are not well familiar with their respective learning management systems (LMS) and they face difficulty in exploring different resources, like lesson contents, PPTs, recommended books, glossary and FAQs related to their course.

Previous researchers show that in distance learning environments, students are the focus of attention not only for instructors but also for management. In order to provide them learning facilities and proper learning environment on their pace a variety of support services are provided. The purpose of providing these support services is to facilitate students in the learning and also their intellectual development and growth (Simpson, 2000; Tait 2000).

Support services are considered important in distance educational programs to achieve the desired results from learners and to achieve learning outcomes (Alias, 2005, Ukpo, 2006). Some of the researchers (Simpson, 2000; Tait, 2000; Usun, 2004) linked the success of e-learning environment with the effectiveness of students support services provided to the students. The most common definition operationalized to describe students support service is the provision of additional help to the learners through different means which include academic as well as non-academic support and also intellectual and cognitive ability development (Simpson, 2000).

Minnaar (2011) explored the student support in e-learning in higher education institutes and found out the guideline to provide learning support to the students. His study concluded that provision of learning support is necessary to initiate in order to enhance human contact in distance learning environment, tackle the pedagogical issue student's face and to solve their technical problems of the system. Further, he emphasized on the creative solution to provide students support in e-learning environment (Rumble, 2000).

Thompson and Hills (2005) concluded that through proper long term planning and careful use of resources could help out in successful implementation of students support services in on-line medium. Further, they also highlighted the need of on-going research in this area so services for students may be changed or up-dated time to time as per their needs and requirements. Provision of services can additionally help out to reduce drop-out rates in on-line institutions (Woodley, 2004).

As different distance learning institutes are focusing on students support services in order to provide students better learning opportunities and to retain them, Virtual University Pakistan has also initiated such type of activities such as mentoring, audio tutorials, on-line interaction through team view, weekly announcements etc. One of the important features that assist in providing academic support to the students is announcement. Weekly announcements provide the opportunity to the students to explore the available resources in efficient and effective manner. Weekly announcement produce academic services included brief overview of weekly lectures, upcoming semester activities like quiz, assignment or GDB, tips regarding time management and sharing of LMS related demo's links. Through these announcements, students provided tips related to preparation of assignments, quizzes and Graded Discussion Boards. Additionally support was also provided in terms of in-time intimation about the semester activities and about mid and final term exams that how they can prepare themselves for exams and get good marks. In order to assess the perceived effectiveness of this initiative in Sociology courses a survey with students enrolled in semester fall 2013 was conducted.

### **Objectives:**

Following were the objectives of the study:

- To explore the student's view regarding role of weekly announcements in enhancing their understanding about weekly lectures before time.
- To find out the students' perception about role performed by weekly announcements in keeping them up-dated with ongoing semester activities

- To know the perception of students about perceived effectiveness of weekly announcements in Sociology courses.

## Method

In order to measure the effectiveness of weekly announcement for Sociology students, student's perception was required so, an on-line survey was conducted. These weekly announcements provided academic services such as brief overview of weekly lectures, upcoming semester activities i.e. quizzes, assignments or graded discussion boards, tips regarding time management, exams preparation guidelines and sharing of LMS related demo's links. The objective behind this activity was to enhance students' understanding about weekly lectures in advance, to familiarize students about upcoming semester activities and to encourage their active participation throughout the semester. This activity was performed during semester Fall2013 and at the end of the semester feedback of the students was taken. An on-line questionnaire was launched with help of IT department of Virtual University in Sociology courses. Total 399 students respond to this survey. Out of total 399 responses, 172 were females and 227 were male students. Mean age of the respondents was 25.44 years. Alpha coefficient of the scale indicated that internal consistency (.886) of the scale was significantly high (Field, 2009).

## Results

**Table: 01**

*Descriptive statistics of dimensions of Perceived Effectiveness of Announcement in Sociology Courses*

	<b>Variables</b>	<b>Mean</b>	<b>SD</b>
1	I could understand course material better.	3.43	1.058
2	I found an opportunity to manage my time for studies.	3.47	1.065
3	It supported me to plan my whole semester activities well.	3.36	1.073
4	I better planned time for studies in holidays and weekends.	3.65	1.003
5	Overview of the previous week lectures was quite helpful in recalling the content covered.	3.56	1.019
6	The practical exercises enhanced my exposure to the subject topics as a whole.	3.53	1.020
7	The demos in weekly announcements facilitated me to use LMS (MDB, GDB, Quiz, and Assignment) easily.	3.71	1.033
8	I was encouraged towards additional study for in-depth understanding.	3.37	1.019
9	Tips were useful for exam preparation.	3.44	1.104
10	I never discussed topics/ content with my class fellows and friends.	3.29	.993
11	It enhanced my course discussion with my instructors.	3.12	1.181
12	I have now better idea of questioning the queries to the teachers.	3.22	.969
13	I am satisfied with the weekly announcements.	3.73	1.005

Data in table 01 explains the enrolled students of Sociology views regarding effectiveness of Weekly announcement activity initiated in semester Fall, 2013. All the

items have mean value more than (3.00) which shows that students perceive all the mentioned factors favorable their learning process. Specifically, the demos in weekly announcements are considered as more favorable element of weekly announcement the highest mean value of (3.71) and standard deviation (1.033). Overall students are satisfied with this initiative of weekly announcement and mean value of (3.73) and standard deviation (1.005) shows its effectiveness from students' perspective.

**Table: 02**

*Inter Correlation of Scores on 13 Items of Perceived Effectiveness of weekly Announcements*

Items	1	2	3	4	5	6	7	8	9	10	11	12	13
1	---												
2	.524**	---											
3	.471**	.585**	---										
4	.415**	.472**	.404**	---									
5	.469**	.547**	.466**	.447**	---								
6	.501**	.492**	.454**	.412**	.591**	---							
7	.368**	.348**	.389**	.305**	.406**	.389**	---						
8	.397**	.404**	.450**	.354**	.429**	.492**	.395**	---					
9	.441**	.440**	.475**	.381**	.444**	.480**	.349**	.454**	---				
10	.545**	.534**	.537**	.360**	.454**	.496**	.529**	.426**	.573**	---			
11	.193**	.133**	.060	.067	.171**	.148**	.151**	.126*	.070	.164**	---		
12	.288**	.323**	.333**	.195**	.368**	.387**	.293**	.319**	.425**	.358**	.149**	---	
13	.403**	.386**	.348**	.309**	.425**	.462**	.370**	.355**	.391**	.453**	.158**	.519**	---

\*\* p<.001

\*p<.005

Table 02 illustrates the correlation matrix of 13 questions for measuring perceived effectiveness of weekly announcement in sociology courses. The table shows that there is a significant correlation between opportunities to understand the course material better and time management for studies. Significant correlation was also found between understanding of course material in context with services to apply knowledge at practical side. Significant correlation was also found between time management, lecture overview and overall satisfaction from weekly announcements. Help provided by weekly announcement in overall semester activities is strong correlated with overall satisfaction from this learning support activity. Facilitation provided through demos is also having strong correlation with overall satisfaction from learning support provision through announcements.

## Conclusion

Announcements serve as effective tool in guiding students and keep them updated about their courses and studies. Present study by focusing on this feature of e-learning was intended to measure the perceived effectiveness of weekly announcement in Sociology Courses. As one of the objectives of the study was to see whether weekly announcements have facilitate students in understanding lectures and related study material, it was found that these announcements proved to be successful in enhancing

students' understanding of course. Students are well guided through these announcements about previous lectures, up-coming lectures overview, practical exercises and useful links to enhance their subjects understanding. The most profound element perceived effective by students was the links of demos shared with students regarding Moderated Discussion Boards, Graded Discussion Boards, Quiz, and Assignments. In these demos students were guided about how to attempt any assignment and graded activities as per requirement of the subject.

Results of the study reveal the fact that different dimensions of perceived effectiveness of weekly announcements were strongly correlated in terms of academic support. It was found that time management tips provided to the students had a strong correlation with overall satisfaction. Similarly, guideline provided in the form of lecture overviews, practical exercises and useful links of different lectures enhanced students overall satisfaction about this students support service. Overall it can be concluded that weekly announcements has provided academic as well as non-academic support to the students. It keeps students updated about the course and also facilitates them in managing their study related issues such as time management.

This study has highlighted the perceived effectiveness of students support services particularly weekly announcements for students in e-learning environment. Results show the effectiveness in terms of understanding the course better as well as managing time for study along with practical application of the subjects. It is anticipated that the findings of this study would provide useful information to practitioners who need to develop the strategies to support especially newly enrolled students and will also be helpful in retaining the students at institution (to decrease the drop-out rate).

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# **Virtual collaborative learning using Wiki for adult ODL learners: The case of Wawasan Open University**

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## **Abstract:**

Virtual collaborative learning is gaining in popularity in Open & Distance Learning (ODL) environment over the last decade. Findings from preliminary study conducted showed that collaborative learning activities enhance student satisfaction and achieve course learning outcomes. Wiki is widely promoted as virtual collaborative tool and has been integrated into several learning management systems. However, there are limited studies on the effectiveness of moodle-wikis for virtual collaborative learning. Therefore, the aim of this study is to evaluate the effectiveness of moodle-wiki in terms of students' perception and students' performance. The collected data was further analyzed and evaluated. The statistical results demonstrated that students have positive perception towards moodle-wiki and the collaborative tool does enhance student's learning performance. This study is useful for instructors and course designers as a guideline to investigate students' perception and evaluate the effectiveness of collaborative tool.

Keywords: Online Learning Support, Instructional Technologies, Virtual Collaborative Learning, Student-Centered Learning, ODL Environment, Learning Process

## **1.0 Introduction**

Wawasan Open University (WOU) is a private and non-profit institution of higher learning dedicated to learners who seek to pursue tertiary qualifications for professional development and self-enrichment. WOU is based on blended learning which combines both online distance learning and traditional face-to-face learning methods. The blended learning moves away from traditional classroom teaching and engages student to participate and become active in their own learning process.

The rapid development of ICT has changed the pedagogy of teaching and learning at all levels of education (Cain, 2000; Helford & Lei, 1999). There is a shift from teacher-centered to student-centered approach. The student-centered approach, instructor-learner interactions, and knowledge sharing among peers are crucial for the successful distance learning courses delivery process.

Collaborative learning is viewed as student-centered teaching practice while knowledge is socially produced through peer interaction. Dillenbourg and Schneider (1995) defined collaborative learning as "a situation in which two or more people learn or attempt to learn something together" (p.1). Collaborative learning solves the problem of pure ODL

which lacks of instructor-learner interactions and peer-to-peer knowledge sharing. Wiki was designed as a collaborative tool on the Internet (Leuf and Cunningham, 2001).

## **2.0 Literature Review**

In constructivist learning environment, students learn by making meaning and building up their own knowledge through collaborative activities (Wilson, Teslow & Osman-Jouchoux, 1995). Based on constructivist theory, collaboration is considered inherently social and the role of peer relationship is considered as a key component of educational success (Golub, 1988).

According to Newby, Stepich, Lehman and Russell (2000), learning is not only an internal process but occur in the context of interacting with peers. In a learning process, learning is influenced by participation in a community (Vygotsky, 1978). Dillenbourg and Schneider (1995) pointed out that students learn because they interact with each other and the interaction triggers some mechanism that produces the effect of collaboration. Tobin (1990) has also highlighted that learners construct their knowledge through social interaction with peers, through applying ideas in practice, and through reflection and modification of ideas.

Wiki is an effective tool for collaborative learning and writing (Lund, 2008; Bold, 2006) and is being used to support learning and teaching within the higher education sector (Hughes, 2009). Numerous empirical studies have shown that wiki is ideal for knowledge creation and management (Bruns & Humphreys, 2007; Raman, Ryan & Olfman, 2005; Nicol, Littlejohn & Grierson, 2005). Moreover, wiki also has the advantage of ease of use, and option for updates and editing by contributors with different access rights (Engstrom & Jewett, 2005).

Minocha and Thomas (2007) used wiki for collaborative activities among distance learning students who took a software engineering development project. Their findings indicate that a wiki is a good medium for collaborative activities in non face-to-face mode. In addition, Mak and Coniam (2008) in their study found that student wrote better when writing collaboratively in wiki.

With the potential benefits of wiki, there is question raise whether student perceive the same levels of usage, usefulness and ease of use while utilizing wiki. According to Liaw, Huang and Chen (2007), the effectiveness of technology implementation in learning greatly depends on positive perception towards it. Liaw (2002) defined perception as feeling towards certain object and statement of beliefs that lead to the individual's action.

Technology Acceptance Model (TAM) was selected in this study as it has been widely used to investigate learners' perception of information technology and applied to studies

of technology acceptance (Bruner & Kumar, 2005). Besides, The TAM is also used because of its tested validity and reliability in measuring and predicting attitudes, technology acceptance and use.

Davis (1989) modified Theory of Reasoned Action (TRA) to predict computer adoption by replacing the belief determinants of TRA with two key beliefs (i.e., perceived ease of use and perceived usefulness. Davis (1989) defined perceived ease of use as “the degree to which a person believes that use of a particular system would be free of effort”; in contrast, perceived usefulness is “the degree to which a person believes that use of a particular system would enhance his or her job performance”.

Figure 1 shows the TAM model. In TAM, technology acceptance and use is determined by intention to use (IU). IU in turn, is affected by Attitude towards Using (AT), as well as the direct and indirect effects of Perceived Ease of Use (PE) and Perceived Usefulness (PU).

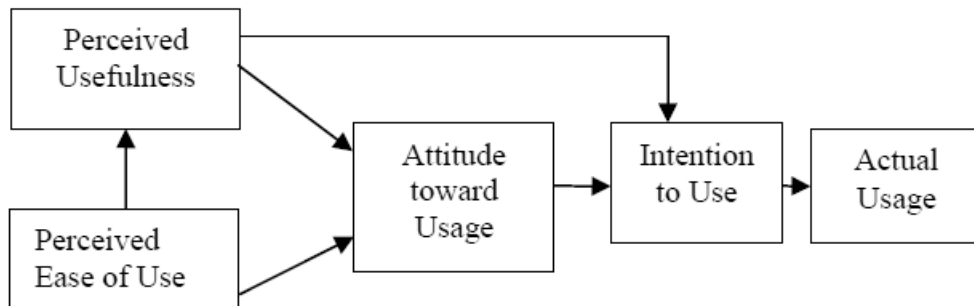


Figure 1: The Technology Acceptance Model (Davis, 1989)

### 3.0 Moodle-Wiki

Moodle-wiki, a wiki in LMS allows students to contribute their ideas by adding, modifying and commenting a wiki in collaboration with others. This engages student-instructor and student-student interactions. The interactions are important for effective learning process.

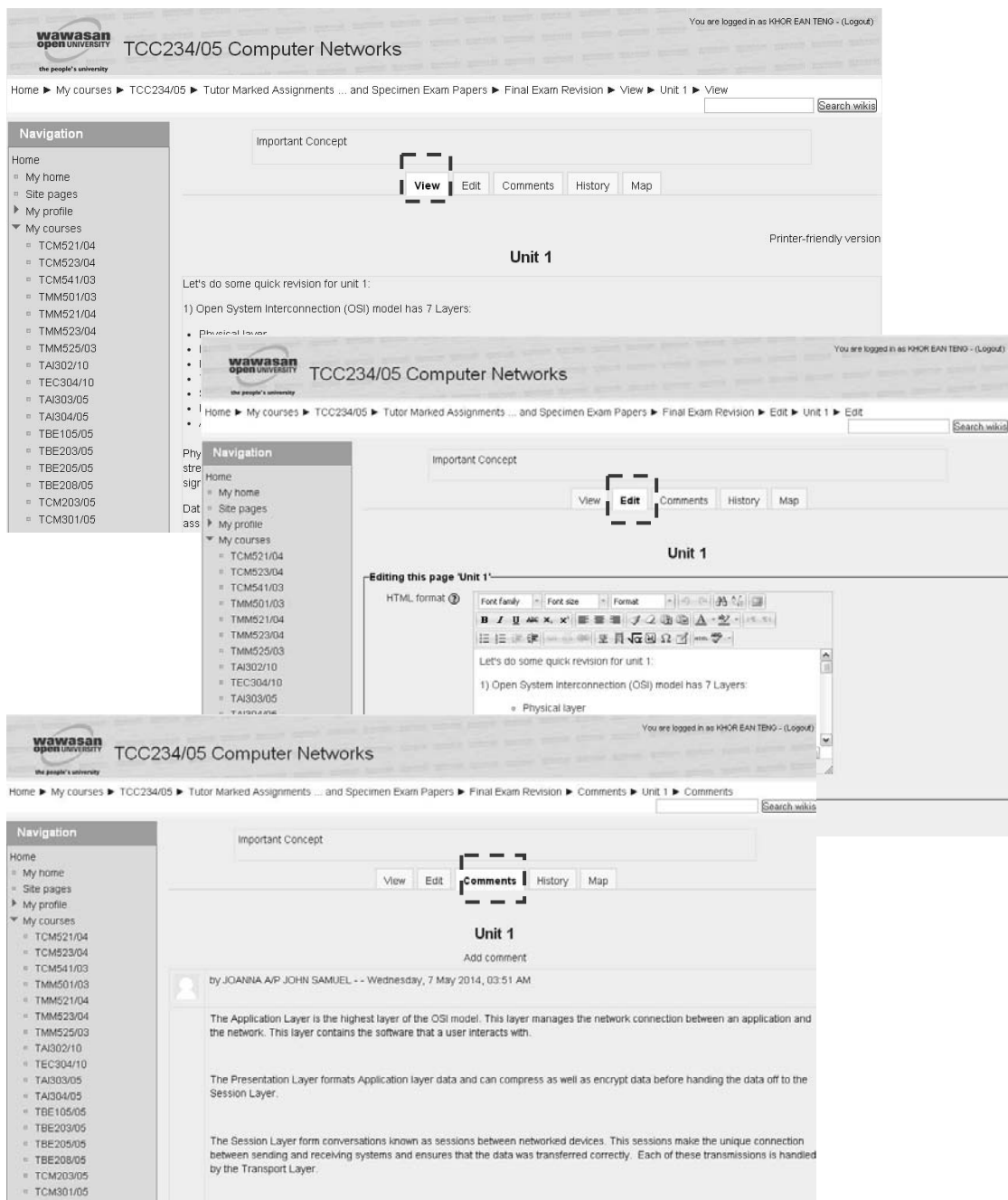


Figure 2: Moodle-Wiki Screen 1

Figure 2, the *View* and *Edit* tab allows user to view and edit the wiki page respectively. The *Comment* tab allows user to add comments about the wiki. For Figure 3, the *History* tab allows user to see what has been altered in the wiki. The tab also allows user to compare and restore edits. The *Map* tab allows user to view areas of the wiki, such as contributions, list of pages, page index, links, orphaned pages and updates pages.

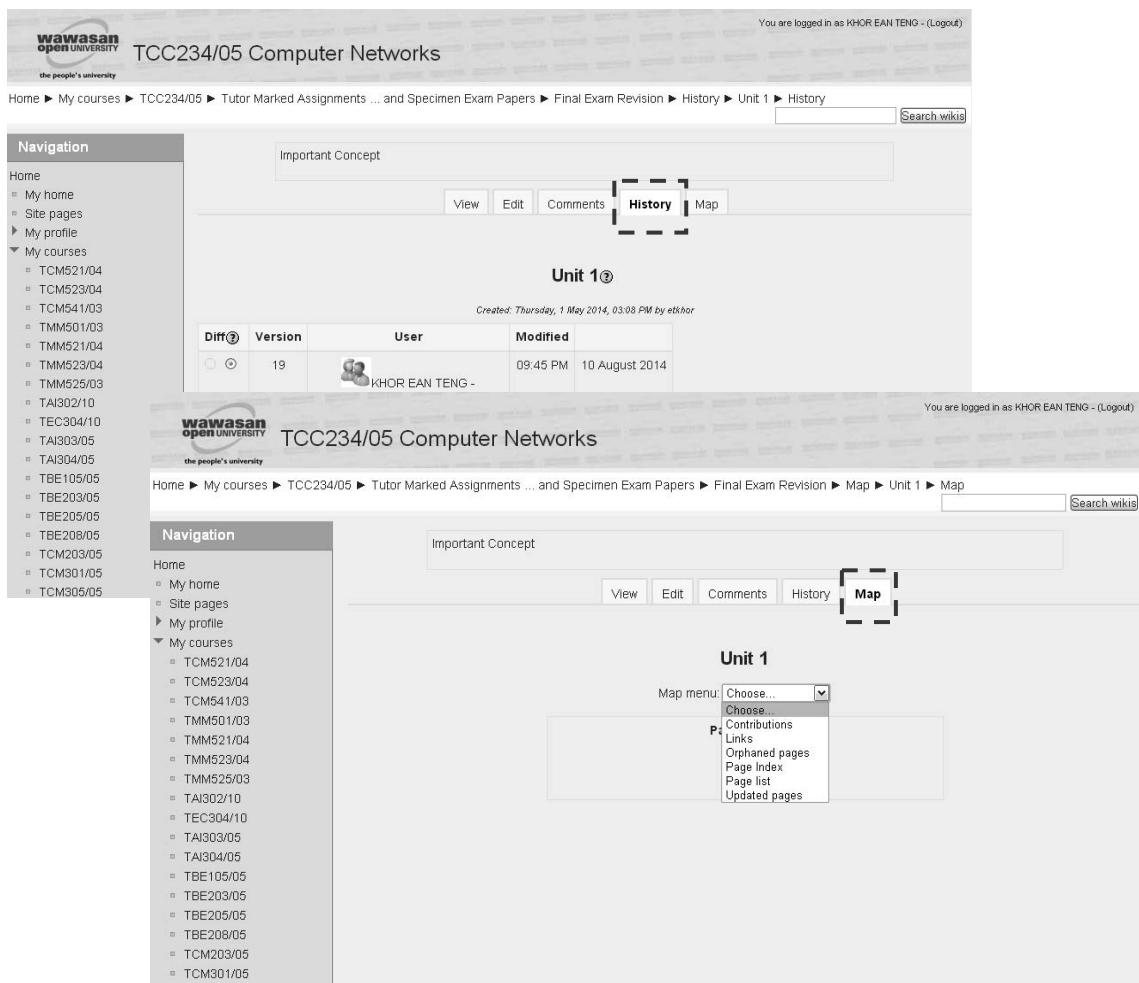


Figure 3: Moodle-Wiki Screen 2

#### 4.0 Research Methodology

The method used to gather information of students' perception towards moodle-wiki was through questionnaires. The questionnaires composed of measures taken directly or adapted from Davis (1989)'s TAM model. Pre-test and post-test instrument was used to assess students' performance and examine the mean score increment from pre-test to post-test.

The participants were recruited from 60 ODL undergraduate students who enroll in TCC234/05 Computer Networks in Jan 2014 semester. It is a middle-level course offered by WOU to all computing students. There are two different groups of samples in this study, namely control group and experimental group. Experimental group was formed from students who used moodle-wiki while control group was formed from student who did not use. The students were randomly assigned to either control group or experimental group.

Pre-test was carried out during third weeks of semester. Both pre-test and post-test consists of similar questions but with a different sequence to prevent students from memorising answers from the pre-test. The pre-test score of each student was recorded accordingly. Post-test were then conducted 15 weeks after the pre-test. The post-test score of each student was recorded accordingly.

The students were introduced to the wiki tool and they are informed about the collaborative tasks at the beginning of semester. Students were also given an extensive training for practical hands-on to understand on how wiki works. The course-coordinator had ensured her students to familiarize themselves with each area of wiki before the actual experiment. The collaborative activity via wiki lasted for 3 months and students contributed their knowledge and ideas to the wiki tasks. They may seek further advice from course-coordinator if they have any doubts from time to time.

The questionnaire was then conducted via online survey. A modified survey instrument based on the principle of Davis's (1989) TAM was distributed to all ODL undergraduate students enrolled in Computer Networks course at WOU. The purpose of the study was explained and appropriate guidelines were given to the respondents before they took part in the survey. Participation in this study was on voluntary basis. The questionnaire designed to include three items of perceived ease of use (PE1-3), three items of perceived usefulness (PU1-3), two items of Attitude Towards Using (AT1-2) and two items of Intention to Use (IU1-2). All items are measured four-point Likert scales anchored between "1=strongly disagree" and "4=strongly agree".

## **5.0 Results and Discussion**

Statistical tests were conducted using SPSS program for further analysis and evaluation. Students' perceptions were assessed from questionnaire data. On the other hand, the independent sample t-test was conducted to compare students' performance (post-test mean score) between control group and experimental group. All the t-tests analyses were conducted at the .05 level of significance.

As observed from Table 1, all of the measures employed in this study demonstrated good internal consistency, ranging from 0.836 to 0.969, thereby exceeding the recommended reliability estimates ( $\alpha = 0.70$ ). The results show that all the mean values fall above the midpoint 3.00. The standard deviations are ranging from 0.681 to 1.008. This indicates that most of the respondents are between 'agree' to 'strongly agree' on the items tested. Among the four variables, IU achieve the best rating with mean value of 4.03 ( $SD=.706$ ).

Table 1: Descriptive Statistics

	<i>M</i>	<i>SD</i>	Cronbach's Alpha
<i>Perceived Ease of Use (PE)</i>	3.69	.792	.874
PE1: I would find moodle-wiki easy to use.	3.50	.938	
PE2: Learning to use moodle-wiki would be easy for me.	3.43	1.006	
PE3: It would be easy for me to become skillful at using moodle-wiki.	4.13	.681	
<i>Perceived Usefulness (PU)</i>	3.49	.966	.969
PU1: Using moodle-wiki would enhance my effectiveness in learning.	3.43	.971	
PU2: Using moodle-wiki would improve my learning performance.	3.47	1.008	
PU3: Using moodle-wiki would increase my productivity in my course work.	3.57	1.006	
<i>Attitude Towards Using (AT)</i>	3.45	.865	.883
AT1: I have a generally favorable attitude towards using moodle-wiki.	3.37	.850	
AT2: I believe it is (would be) a good idea to use moodle-wiki for my course work.	3.53	.973	
<i>Intention to Use (IU)</i>	4.03	.706	.836
IU1: I intend to use moodle-wiki whenever possible.	4.10	.759	
IU2: I would adopt moodle-wiki in the future.	3.97	.765	

Table 2 illustrates acceptable discriminant validity between each pair of construct, with all AVE square roots greater than the correlation between the constructs. The correlations among the variables are relatively strong, with correlation pearson's  $r$  ranging from .691 to .932.

Table 2: AVE Square Roots and Inter-Correlation

Construct	Perceived Ease of Use	Perceived Usefulness	Attitude Towards Using	Intention to Use
Perceived Ease of Use	1.000			
Perceived Usefulness	.811**	1.000		
Attitude Towards Using	.874**	.932**	1.000	
Intention to Use	.913**	.691**	.751**	1.000

\*\*Correlation is significant at the .01 level (2-tailed)

As observed from Table 3, the independent-samples  $t$ -test failed to reveal a statistically reliable difference between the pre-test mean score of experimental group ( $M = 41.27$ ,

$SD = 11.248$ ) and control group ( $M = 42.56$ ,  $SD = 14.792$ ) with  $p > .05$  and  $\alpha = .05$ . In other words, pre-test mean score of control group and experimental group is homogeneous.

Table 3: T-Test Analysis of Pre-Test Mean Score between EG and CG

	<i>M</i>	<i>SD</i>	<i>t</i>
Experimental Group (EG)	41.27	11.248	
Control Group (CG)	42.56	14.792	-.465

Table 4 shows the post-test mean score of experimental group is 74.80 ( $SD = 10.738$ ) and post-test mean score of control group is 62.98 ( $SD = 16.660$ ). The result of  $t$ -test analysis indicated a significant difference between control group and experimental group with  $p < .05$  and  $\alpha = .05$ .

Table 4: T-Test Analysis of Post-Test Mean Score for CG and EG

	<i>M</i>	<i>SD</i>	<i>t</i>
Experimental Group (EG)	74.80	10.738	
Control Group (CG)	62.98	16.660	4.001***

Note: \*\*\* $p < .001$

The comparison of pre-test and post-test for both experimental group and control group is illustrated in Figure 4. There is a dramatic rise of 33.53% from 41.27% to 71.8% for post-test mean score of experimental group with the use of wiki collaborative tool if compare to control group (a rise of 20.42% only). The findings are well in line with other research studies that it is an effective tool for collaborative learning (Lund 2008, de Pedro et al., 2006; Bold, 2006) and it does enhance students' learning and improve the understanding of topics.

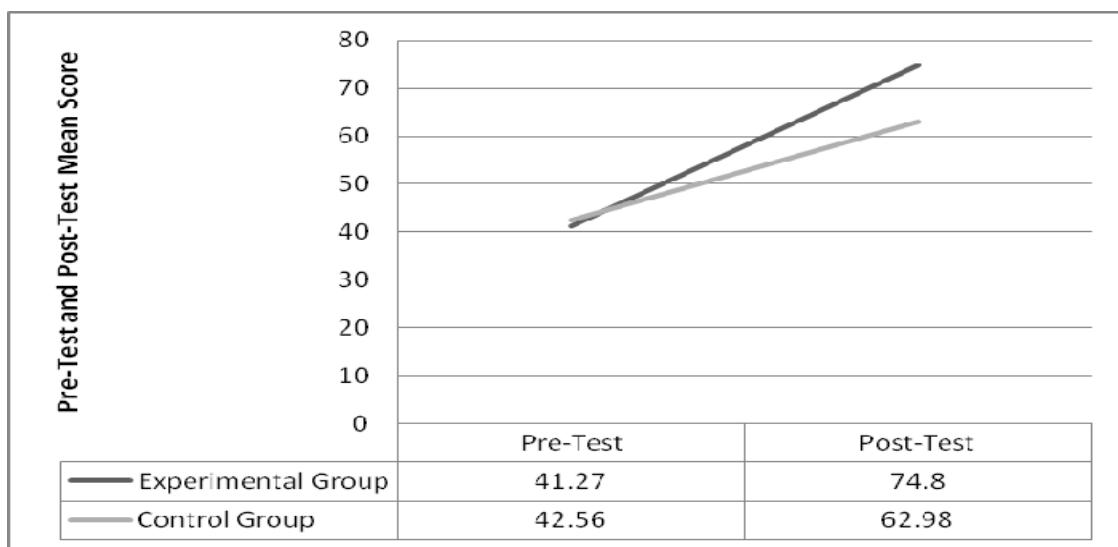


Figure 4: Line Graph of Pre-Test and Post-Test for Experimental Group and Control Group



## 6.0 Conclusions

The aim of this research study is to evaluate the effectiveness of moodle-wiki in terms of students' perception and performance. The findings reveal that students perceived moodle-wiki well and had used moodle-wiki extensively for their learning. The findings also show that moodle-wiki is an effective supporting tool to enhance students' academic performance. The results gained from this research study provide solid understanding on the implementation of wiki in moodle learning management system. In addition, this study provides guidelines to relevant stakeholders to study students' perception towards the implementation of any new teaching and learning methods. Further study on other fields of study, such as engineering, management and psychology is recommended.

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# **Mobile applications at a mega university: Anadolu University campus app**

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## **Abstract**

This paper explores the use of mobile applications to aid on campus and off campus students at a mega university. Anadolu University is the world's second largest university by enrollment ("List of largest universities by enrollment", 2014). With over 1,900,000 students enrolled from over 30 different countries, university serves a large demographic of students. Since from the early days of establishment Anadolu University used various means to access its students. During the last decade with the introduction of mobile technologies and smart phones that are connected everywhere, expectations of students have changed. Students expected to be in contact with their educational institutions without any barriers. Anadolu University released its first mobile campus app on iOS platform in May 2012. Students adopted the App quickly and the mobile app user community requested new functionalities. Since then the university has released three major and over 25 minor releases of the App on both iOS and Android smartphones. This paper describes the lifecycle of Anadolu Campus App and its evolution over the years. We saw that there is a wide acceptance by our students both on campus and off campus. Increasing number of users gives an insight into the high rate of adoption of smartphones.

Keywords: Mobile applications, technology integration, student support services

## **Introduction**

Within last 10 years three major technologies has emerged: mobile devices, social media and location aware services. Service providers and consumers started using these new technologies and started forming new habits around these newly available technologies. Mobile devices, which can access the Internet over cellular data networks, enabled us to have a new communication medium. Smart phones and tablets that are constantly connected to the Internet allowed users to access information and conduct transactions without any locational barriers.

Users of this technology, especially students, started expecting their service providers to conform/adapt to this new medium. Universities as educational service providers started adapting to this new medium by creating applications to support the learning experience of their students. Abilene Christian University ACU was the first university to integrate mobile devices to their education system. iStanford application for Stanford University was one of the earliest university campus application released on the Apple Appstore ("iStanford", 2014). Anadolu University, world's second largest university by enrollment, implemented Mobile Campus Application running on Android and iOS devices, so that students and faculty can access campus resources from their smart

phones. Initial version of the application was released on iOS devices in early 2012. It has been installed on 48,400 iOS and 43,356 Android devices, which is a total of 91,756 mobile devices.

This paper describes how Anadolu campus application evolved to what it is today; next section gives details about Anadolu University and its student demographics, and looks at mobile applications from other institutions. Section 3 details the development process and current functionalities of the Anadolu mobile App. Section 4 provides our conclusions and future work.

### **Anadolu University**

Anadolu University (<http://www.anadolu.edu.tr>) is a dual-mode university with 16 faculties (3 of which offer open education), 4 applied schools, 4 vocational schools, 9 graduate schools, 25 research centers, and 15 research, development and application units. The open education system of Anadolu University has been taken as a model by many countries. The university is the world's second largest university by enrollment with over 1.900.000 distance students. Currently Anadolu University's open education system offers 11 bachelor degrees, 31 associate degrees, and 26 certificate programs in a wide variety of disciplines. The university offers open education opportunity to students living abroad mainly the Turkish Republic of Northern Cyprus, Azerbaijan and various European countries. About half of all higher education students in Turkey are students of Anadolu University's open education system. Courses are delivered by a variety of methods, including Internet, video conferences and pre-recorded television broadcasts.

The university has three campuses in Eskişehir, Turkey. The majority of administrative units and social facilities are at the main campus, Yunus Emre Campus, which is located at the center of Eskişehir. İki Eylül Campus houses the School of Physical Education and Sports, the Faculty of Aeronautics and Astronautics, the Faculty of Engineering and Anadolu University Airport. The Porsuk Vocational School offers education in its own building in the city ("About Anadolu University", 2014).

Anadolu University's students have access to all cultural and art activities at theatre, concert and exhibition halls on the campus. They also have the opportunity to do sports in gyms, semi-olympic swimming pool, tennis courts and green pitches. Anadolu University also provides housing and food grants to successful but financially disadvantaged students.

Anadolu University conducted a large survey during registrations for the 2011-2012 academic year to assess computer literacy levels and Internet access of the students. The survey reached to 43,272 new registering students, which was around 30% of all the registering students that year (Karadağ, 2014). Computer literacy levels of students are summarized in Table 1. According to the survey results only 0.6% of the students had no computer skills and over 91% had intermediate or better skills.

Table 1. Computer Literacy Levels

Computer Literacy Levels	New Enrollments	Ratio
None	266	0.6%
Beginner	3,555	8,2%
Intermediate	23,253	53,7%
Advanced	16,198	37,4%
Total	43,272	

Table 2. Internet Access Types and Ratios

Internet Access Type	New Enrollments	Returning Students	Total	Ratio
No Internet Access	1,466	1,117	2,583	3,3%
Only from home	19,232	13,070	32,302	41,0%
Only from work	4,512	4,539	9,051	11,5%
Both from home and work	13,580	14,590	28,170	35,8%
Only from Internet cafe	4,482	2,159	6,641	8,4%
Total	43,272	35,475	78,747	

Table 2 above shows the results of the survey that analyzed whether the students had Internet access, and how frequent they could have access. Only 3.3% of the students had no daily Internet access. 88% of the students had daily Internet access either from home or from work and 8% had only access from an Internet Cafe.

These results encouraged Anadolu University to integrate technology more into their educational system. Some of the projects that were started after this survey are Creation of Interactive eBooks for Distance Education programs, Online Concurrent Exams, Video Portals for Educational Materials and Campus Applications.

#### **Campus Applications at Other Institutions**

Most of the leading universities in the world have designed and developed their mobile campus applications for students, faculty, staff and visitors who want on-the-go information and want to stay connected with the campus and the university through

mobile devices. Stanford University was the first university to launch campus mobile application in 2008. The application was downloaded 11,000 times in the first month of the launch. Following Stanford University, many other universities started developing mobile campus applications. Among those, MIT has released an open source solution called MIT Mobile that allowed other universities to develop web-based mobile solutions ("MIT Mobile Experience Laboratory", 2014). Some of the examples of campus applications are described below.

Harvard University's mobile application has people directory, map of the campus, shuttle tracker, dining options, news, events as well as the course administration and admission operations. The App also provides social networking, and library options. The application allows the users to customize the icons on the homepage so that the user can only see the options he/she would like to ("Harvard Mobile", 2014). Harvard University has also developed a mobile application to do virtual tours in Harvard campus. This self-guided tour features stop descriptions, audio, video and images including picture from the University archives and inside views of Harvard buildings ("Visiting Harvard", 2014). Both applications are available for both iOS and Android operating systems and also as a mobile web application accessible to any web-enabled smartphone.

University of Michigan's mobile application offers course information including the grades, course resources and announcements. Users can send documents to print stations. The application also provides real-time bus routes, dining menus, news, phone directory, campus map, events calendar, career center information, travel registry tips and emergency contacts. The students can locate open seats at campus computer labs, search in the university library catalog and use mobile library resources. The application also offers a feature to make donations from the mobile device ("University of Michigan Mobile Apps Center", 2014).

MIT Mobile has campus news from the MIT News Office, real-time GPS shuttle tracker with push notifications for predicted stop times, searchable campus map, calendar of events, exhibits, holidays and the academic calendar, searchable phone directory of MIT, self-guided campus tour, push notifications in case of a campus emergency, MIT libraries account management and catalog search, campus dining menus and hours, and report campus maintenance issues ("MIT Mobile by MIT", 2014). The application has integration with the University's course management system.

Princeton University's mobile application has the features of news, public and student events, real-time shuttle information, campus map, dining locations, hours and menus, campus directory, media-rich walking tours, course listings, library access, sports news and schedules ("Princeton Mobile by Princeton University", 2014).

Stanford University's campus application iStanford has the following features: request safe ride home, inquiry about enrollment, financial aid and transcript, display news, schedules and scores of the university's team, create flyers to capture a moment, organize a calendar, search on courses, enroll or view grades, access Stanford's learning management system, search on phone directory, have transcript emailed to anyone via digitally-secure pdf. The application has also built-in emergency contact numbers and

information. ePay component lets the authorized students access the University's online student billing. Events and Tickets options allow the users to find and keep track of Stanford activities. Users can also tour and browse the buildings on the Stanford campus. StanfordMe component works as a mobile ID card. Videos option lets the users reach Stanford YouTube video content via the App ("iStanford by Stanford University", 2014).

Yale University's mobile campus application has menu options for news, faculty and staff directory, campus maps, event calendar and Flickr images of Yale. The application also offers Open Yale Courses' recorded videos to learn on the go ("Yale iPhone app", 2014).

All of the mobile applications described above are available for both iOS and Android operating systems. In addition to iOS and Android, Stanford University also provides the Blackberry version of the application. These universities also provide 'mobile-aware' websites that detect the used mobile device type and resize and wrap the text rather than shrinking the page layout of the desktop version. This feature has become widely used as most websites were designed to fit a desktop or laptop display and today with the millions using mobile devices to access the web it has become crucial to optimize the web sites for these devices ("What is Mobile Awareness?", 2014).

Anadolu University has also implemented 'mobile-aware' feature. This feature will be available for both iOS and Android in the upcoming release in November, 2014.

### **Development Process and Functionalities of Anadolu University Campus App**

First version of the Anadolu University Campus App was launched for iOS devices on May 15, 2012 and shortly followed by the Android version on July 10, 2012. Development of the App started on early 2011, it went through various iterations before it was submitted to the App Store. The development process required many university services available via web services, which was not available at the time. We implemented the RESTful Services which allows decoupling of resources from their representation and allows access from different formats.

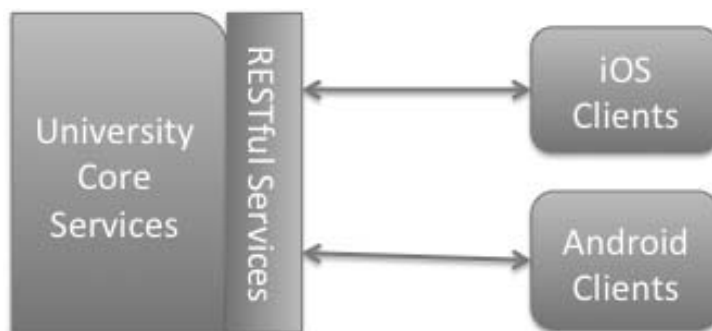


Figure 1. Communication with the campus applications

As seen in Figure 1, RESTful services ("The Java EE 6 Tutorial", 2014) were implemented over all the core university functions; registrar operations, library and cafeteria operations. Any client written in iOS or Android could connect to University

Core Services via this new service. This separation helped the development process; it allowed mobile developers to access critical university information without directly connecting to Core Services. University Core Services administrators and programmers used this service to control what information and functionality can be accessed by the mobile developers.



Figure 2. Version 1.2 screenshots from the iOS application

Mobile Campus App group worked with the university administrators to come up with a list of functionalities that will be available to faculty, staff and both on-campus and distance students. University Core Services group implemented the RESTful services for those functions, and mobile application developers implemented the user interfaces for them. This architecture allowed Anadolu University to create Campus Applications in various platforms.

Initial functionality for the earlier versions of the Campus app was identified as Library Access, Registrar Operations, Cafeteria, News, Events Calendar and Map where the screens are shown in Figure 2.

The application also supports user management and the functionality of the application changes based on the users group, when a faculty uses the application she can access the student list in her course, examine transcripts or approve courses for her advisees; when a student uses the application he can check his schedule see his grades.

iOS version 2.0 of the application was released on May 29, 2013 and Android version 2.0 was released on May 31, 2013. Version 2.0 had the features of new graphical design that reflected the university's corporate identity, social media integration and Anadolu University's official radio station (Radyo A) integration. Following the 2.0 version, minor revisions and bug fixes were released within the six months period. iOS version of the application had seven major releases between May 29, 2013 and Nov 20, 2013 and Android version of the application had 27 releases between May 31, 2013 and July 3, 2014.



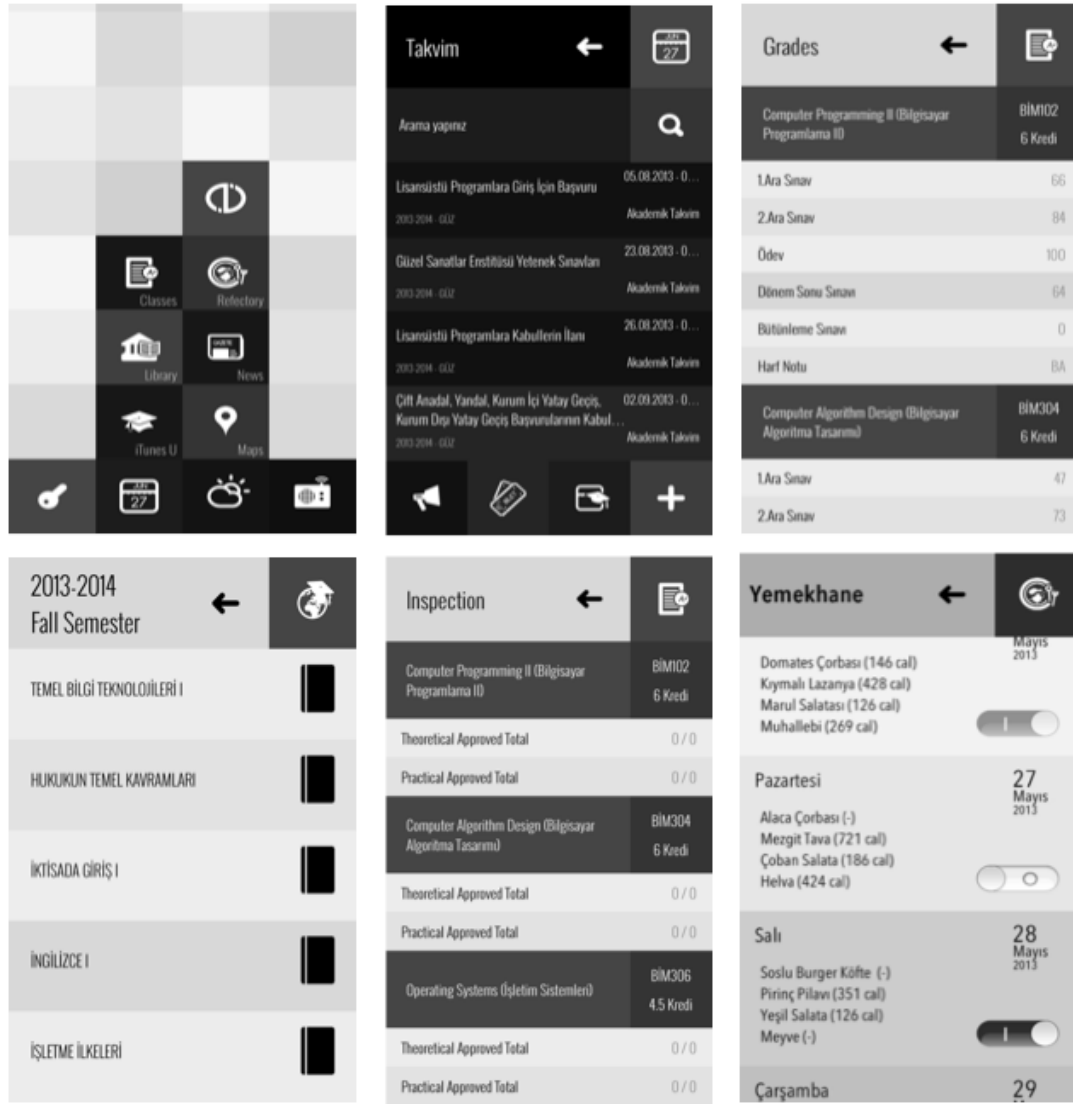


Figure 3. iOS and Android same look and feel starting version 2.0

In the current iOS version of the application student or faculty has access to the main menu, shown in Figure 3 top left, which offers the choices of Courses, Library, Campus Map, Anadolu University Book Reader, Cafeteria Menu, News, Calender, Twitter and iTunes U. Users can also listen to the university's radio channel Radio A through the application. Some of the components of the application, such as the courses, require the user to be logged in to the application. The authentication to the application is done via University Active Directory Servers.

Version 2 of the App had two major features. The first feature is the implementation of the same look and feel on all the mobile apps, that reflects the same corporate identity. The second feature is the inclusion of learning tools that was not present in the earlier versions. Anadolu Book reader integrated in the App has rights management functionalities implemented and allows students to access all the print material that they are assigned to them during their studies at Anadolu University from their phones and

mobile devices. iTunesU integration allows students easy access to the courses they are registered from their devices.

One of the most used functionalities of the App is the cafeteria function. At Anadolu University with over 35,000 on campus students and over 9,000 employees, both students and employees can eat lunch at very discounted rates when they pre purchase their meals. The App allows students and faculty to access university's daily and monthly cafeteria menu as well as the university's dining restaurants' menu. The reservation feature is also available through the application.

### **Conclusions and Future Work**

Mobile devices that are always connected to the Internet is changing how we communicate with our clients, students and employees. At Anadolu University, the mobile campus application showed very rapid adoption by the students and staff. Now Anadolu University Campus App is installed on 91,756 devices of which 43,356 are Android devices and 48,400 iOS devices.

The campus app allowed distance education students be constantly connected to the campus and its resources. Push notifications and easy access to course materials and registrar operations made the Application popular amongst distance education students. Survey and ratings on both Apple Appstore and Android Market show that App is rated 3.85 stars out of 5.

Recent versions of the App included learning tools such as Anadolu Reader and iTunesU integration, we plan on adding more learning tools to our mobile app in the future. Specifically tools to enable students talk and connect with their peers and professors to create a more synchronous learning environment. We believe with roughly 10% adaption rate within two years is a very successful launch of our Mobile Campus App. We will continue development and supporting new functionalities.

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# Moodle quizzes in the learning environment

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## Abstract

*One of the more dynamic functions that Moodle has to offer is the quiz module which allows the creation of quizzes with different types of questions. These questions can be adapted to specific learning outcomes / objectives which can contribute to the teaching – learning process. Currently in Wawasan Open University (WOU), the use of the quiz module as a teaching or learning tool is kept at a minimum since there are no university policies encouraging the use of Moodle quizzes for teaching purposes. Academics are, however, encouraged to use whatever means necessary to enhance the learning experiences of the learners. Moodle quizzes are used primarily as a non-graded self-assessment tool in the learning environment of WOU. The quiz module has been diligently used in the elementary Microeconomics course since 2007 for the purposes as stated earlier. As there is a constraint in time, this paper will compare the performances of two cohorts of learners in two different semesters all of whom are first year learners. This paper focussed on analysing the learners' answers and performing a psychometric analysis of the appropriateness and quality of the questions used in the quizzes in achieving the learning outcomes. The questions are generally appropriate with the ability to discriminate between good and bad students. However, further fine-tuning is necessary for improving the tool. It is possible to use them as assessment tools within the context of open and distance learning environment. However, there are a lot of preliminary work that needs to be done on the design of the quizzes so that the tool is more effective.*

Keywords: moodle quiz, self-assessment, learning outcomes, learning pace

## **Introduction**

Distance learning institutions face a difficult task when they have to provide the most conducive environment for their learners to perform. It goes without saying that the introduction of e-learning and information and communication technologies provides a new, but rather complex, framework for learning. It is essential to know how to put new activities into practice, as well as how to improve them through the assessment of their implementation. Wawasan Open University (WOU) has always promoted a student-centred system based on the student workload required to achieve the objectives of a study programme. These objectives should preferably be specified in terms of the learning outcome to be acquired. Learning outcomes are sets of competences, a dynamic combination of attributes, abilities and attitudes, expressing what the student will know, understand or be able to do after completion of a process of learning. Hence, in this context, e-learning tools provide an outstanding opportunity to enhance learning activities in the classroom in this era. With that in mind, this paper attempted to look into online assessment such as Moodle quiz to enhance the learning experience.

## **Background of study**

This study was conducted on the learners of Microeconomics, an elementary level course that is offered by the School of Business and Administration at Wawasan Open University (WOU). The basis of the study is to look at the effectiveness of using the quiz module of the Modular Object-Oriented Dynamic Learning Environment (Moodle), an open source learning platform as a learning tool as well as assess the possibility of using them as formative or summative assessment.

There are a range of tools provided by Moodle to assist the teacher in teaching learners. The researcher focused his attention only on the quiz module. This module allows the creation of quizzes with different question types, adapted to the specific objectives to be achieved at any step in the teaching-learning process (Blanco et al, 2006). A powerful tool for monitoring and diagnosing a student's understanding, Moodle quizzes can contribute to the development of new strategies not feasible with the traditional paper-and-pencil exams.

The quiz module is one of the least used functions of Moodle in WOU. At the moment of this study, Microeconomics is the only course that uses Moodle quizzes as a learning tool. No marks are allocated for this activity. Quizzes have been used in this course since 2007 but due to time constraint only data from two semesters are analysed in this paper. There a total of 7 quizzes designed to be used for teaching Microeconomics to learners who are predominantly in their first year. The self-contained course material used for learning Microeconomics in WOU contains 5 units of study. The 7 quizzes were designed to coincide with the 5 units keeping the learning outcomes of each unit in line.

Each quiz contains 10 multiple choice questions with 4 options offering in this case strong feedback, that is, learners were given not only the knowledge of their own score, often described as "knowledge of results," they are also provided additional explanation.

Therefore, the feedback consists of the correct answer and an explanation on why the distracters are wrong. Gibbs and Simpson (2004) noted that it is acknowledged for many students, the only contact they have with their tutor is through feedback. And in this case, there is no tutor, only learner and quiz. This is necessary if we want to ensure the learners really learn from the quizzes. Knowing the correct answer alone is not enough to enhance the comprehension level of the learners. The quizzes allow for multiple attempts for learners to improve their understanding and there is no time limit imposed.

## **Review of literature**

There are not many researches done in the area of Moodle quizzes and its effectiveness as an assessment tool. One of the early studies published on this topic found that frequently-quizzed students perform better in class, and they do so because they become more motivated and hence put in greater effort to learn (Fitch, Drucker and Norton 1951). Unfortunately, the quiz here is in reference to a face to face quiz and not one conducted in an online environment.

Blanco and Gianvort (2006) did a study on the use of Moodle quizzes for Mathematics and Statistics for first year engineering students. They concluded that Moodle quizzes are certainly useful to promote student involvement in these subjects. They also added that in order to help boost effectiveness in the learning process, the design of the quizzes for future use must taking into account the total results given by the psychometric analysis.

Quizzes as an assessment tool would entail provision of marks to ensure students would work at the quizzes diligently. When students have the ‘carrot’ of summative assessment (even if lightly weighted) they usually attempt all the questions (Jordan & Butcher, 2010). This makes sense as human beings do respond positively to incentives and marks tied to an activity would certainly draw interests among learners.

One of the issues with using quizzes in this study is that the researcher has used multiple choice questions in the quizzes. One is aware that multiple-choice exams are not the most suitable to provide information about the learning process (Gerfield, 2003). Nonetheless, it served its purpose for the sake of this study.

There were researches done to look into the possibility of learning from the quizzes themselves. Students can learn from the quiz instrument since they are able to attempt the quizzes multiple times as with the availability of instant feedback (Sagarra & Zapatta, 2008).

## Methodology

The quiz module was activated for learners of the Microeconomics course in July 2013 and January 2014 semesters. There are a total of 7 quizzes used to enhance the learning experience of learners in this course. Of the 7, only Quiz 1 is used for this study as it is at the elementary level with a lower order thinking skills (LOTS) needed to attempt the quiz. The questions in this quiz test the learners on the knowledge level in the Bloom's Taxonomy. Table 1 shows a summary of the alignment between Bloom's Taxonomy and the questions in Quiz 1.

Table 1: Alignment of Bloom's taxonomy for each question

<b>Bloom's Taxonomy</b>	<b>Questions</b>
Knowledge	1, 2, 3, 4
Comprehension	7, 8, 9, 10
Application	5, 6,

Interestingly, only Quiz 1 has the highest number of learners taking part. The novelty of the quizzes seems to diminish as the semester progresses. This paper will not attempt to unravel the mystery of the diminishing interest in quizzes, at least not now.

A psychometric analysis of the questions in the quizzes would be done to evaluate the appropriateness of the questions. Psychometric analysis is a mathematical procedure which applies statistical principles for determining the suitability of the proposed questions based on the responses and their individual relationship with the rest of the answers, thereby detecting whether the proposed questions are appropriate to assess the level of knowledge, degree of difficulty and degree of discrimination between high and low conceptual skills (Heck, 2006).

A survey was conducted on the first year first semester learners of WOU in the two semesters; July 2013 (76 respondents) and January 2014 (86 respondents). Only those are enrolled in the Microeconomics course were included in this survey. At the moment, this is the only course that uses quizzes extensively for learning purposes. A series of statements were given in the survey with a 5 point Likert scale (1= strongly disagree, 5 = strongly agree). The survey evaluated the motivations for the learners in attempting the quizzes and the quality of the quizzes. This survey is important to investigate the learners' feedback on the quiz as a learning tool. Moreover, what is more important is whether the learners think that this is an effective tool for learning purposes. It is pointless to do something for the sake of doing it

## Results and Discussion

Given the novelty of the technological tools and the pedagogical approach involved, a psychometric analysis and an analysis of learners' results are essential in this kind of assessment, all the more so because, the quizzes covered an important part of the syllabus of a Microeconomics course for undergraduate business students. For activities such as quizzes, Moodle not only provides the score and elapsed time, but also a

detailed analysis of each learner's responses and item analysis of the items themselves. Analysing each learner's response would not be feasible given the time constraint of the researcher.

### Psychometric analysis of the questions

Moodle offers a range of resources to carry out a psychometric analysis of a particular quiz. One can conduct an assessment on the test (test statistics) whereby the whole quiz is evaluated or on the questions (question statistics) where individual questions are evaluated. In this section the researcher will attempt to analyse the psychometric quality of the questions in the quiz, which can help us to answer whether the questions are appropriate, well chosen to demonstrate concepts and of an appropriate level of difficulty and whether the questions discriminate between higher and lower student abilities.

This paper only looks at the individual questions in the test therefore the researcher has chosen three significant indices namely the Facility Index (FI), the Discrimination Index (DI) and the Discrimination Efficiency (DE). Item FI describes the overall difficulty of the questions. This index represents the ratio of users who have answered the question correctly. In principle, a very high or low FI suggests that the question is not useful as an instrument of measurement.

Table 2: Interpretation of Facility Index

<b>Facility Index</b>	<b>Interpretation</b>
5 or less	Extremely difficult or something wrong with the question.
6-10	Very difficult.
11-20	Difficult.
20-34	Moderately difficult.
35-64	About right for the average student.
66-80	Fairly easy.
81-89	Easy.
90-94	Very easy.
95-100	Extremely easy.

The discrimination index (DI) is the correlation between the weighted scores on the question and those on the rest of the test. It indicates how effective the question is at sorting out able students from those who are less able. Discrimination efficiency (DE) on the other hand attempts to estimate how good the discrimination index is relative to the difficulty of the question. The discrimination efficiency will very rarely approach 100%, but values in excess of 50% should be achievable. Lower values indicate that the question is not nearly as effective at discriminating between students of different ability as it might be and therefore is not a particularly good question. The results should be interpreted as in Table 3.



Table 3: Interpretation of Discrimination Index

<b>Discrimination Index</b>	<b>Interpretation</b>
50 and above	Very good discrimination
30 – 50	Adequate discrimination
20 - 29	Weak discrimination
0 - 19	Very weak discrimination
-ve	Question probably invalid

(i) July 2013 semester

Table 4 depicts the question statistics for the learners in the July 2013 semester. A total of 33 learners attempted this quiz. As can be seen, the FI for the 10 questions is in the third column. It indicates a low of 42.42 and a high of 84.85. According to Table 2, questions with an FI of above 80 are considered easy. This can be seen in MCQ3 and MCQ4. As for MCQ6, the FI is the lowest at 42.42 which indicates that the question level is about right for the average student. Table 1 shows that MCQ6 is a question on application. The average tertiary student in the Malaysian context would have to have a minimum of Higher School Certificate (A-level equivalent) with a minimum age of 20. The youngest learner in this batch is 25 years old. In a distance learning institution, average takes a whole new meaning.

Table 4: Question Statistics July 2013

<b>Question name</b>	<b>Attempts</b>	<b>Facility index</b>	<b>Discrimination index</b>	<b>Discriminative efficiency</b>	<b>Mean Score</b>
MCQ1	33	75.76%	20.09%	27.42%	0.91
MCQ2	33	78.79%	47.32%	70.80%	0.85
MCQ3	33	84.85%	39.83%	56.82%	0.85
MCQ4	33	84.85%	39.83%	60.56%	0.91
MCQ5	33	66.67%	28.73%	36.62%	0.76
MCQ6	33	42.42%	1.99%	2.41%	0.61
MCQ7	33	45.45%	51.60%	65.89%	0.88
MCQ8	33	75.76%	31.45%	41.94%	0.58
MCQ9	33	63.64%	53.28%	65.89%	0.82
MCQ10	33	90.91%	18.22%	30.71%	0.79

As for the DI, a value of above 30 is expected to be adequate enough to provide the necessary discrimination between good and bad performers. As can be seen, questions 2, 3, 4, 7, 8 and 9 provides the right level of difficulty to be able to distinguish between the abilities of the students in this cohort. Again MCQ6 stands out as the question with the lowest DI score of 1.99. A DE score of above 50% is sufficient to indicate that the DI is good enough to effectively discriminate between learners with different abilities. Again the infamous MCQ6 stands out at 2.41. A possible explanation for this might be the fact

that these questions are in the first Unit of the course and the learners are still trying to grasp the fundamentals of Microeconomics let alone understand the application.

(ii) January 2014 semester

Table 5 depicts the question statistics for the learners in the January 2014 semester. A total of 41 learners attempted this quiz. As can be seen, the FI indicates a low of 36.59 and a high of 95.12. As mentioned earlier, questions with an FI of above 80 are considered easy and there is one question (MCQ10) that is “extremely easy”. A similar question was asked in this cohorts’ first assignment which could be the reason for this value. MCQ6 again has the lowest FI at 36.59 even lower than the previous cohort. The mean score is also only 0.45 indicating the below average performance of the learners for that question. The main reason for this to happen is because the course material used in the January 2014 semester has been revised. The topic that was tested in MCQ6 has been transferred to Unit 2. Since the students were told that Quiz 1 is related to Unit 1, only a handful would have read Unit 2 at the point of answering these questions.

Table 5: Question Statistics January 2014

Question name	Attempts	Facility index	Discrimination index	Discriminative efficiency	Mean Score
MCQ1	41	80.49%	39.62%	55.81%	0.77
MCQ2	41	63.41%	35.41%	44.69%	0.65
MCQ3	41	70.73%	18.30%	22.85%	0.71
MCQ4	41	82.93%	32.46%	45.07%	0.84
MCQ5	41	75.61%	12.85%	16.01%	0.84
MCQ6	41	36.59%	-3.04%	-3.97%	0.45
MCQ7	41	43.90%	25.96%	34.17%	0.97
MCQ8	41	75.61%	39.66%	52.58%	0.48
MCQ9	41	73.17%	47.33%	62.00%	0.74
MCQ10	41	95.12%	24.21%	50.30%	0.71

As for the DI, questions 1, 2, 4, 8 and 9 provides the right level of difficulty to be able to distinguish between the abilities of the students in this cohort, 2 questions lesser than the previous batch. Again MCQ6 stands out as the question with the lowest DI score of -3.04. This indicates that the question might be invalid. Technically it is since the topic tested is covered in a different unit and learners may not have read them. A DE score of -3.97 again pushes MCQ6 into the limelight confirming the earlier suspicion.

The DI provides a rough indicator of the performance of each item to separate high scorers vs. low scorers. The DE is a correlation coefficient between scores at the item and at the whole quiz. In both cases, higher values indicate items that discriminate proficient learners, whereas lower indices mark items that are answered best by those with lowest grades, hence not helping to discern between the good and the bad performers. In short, these coefficients can be used as a powerful method of evaluating the effectiveness of the quiz when assessing differentiation of learners. The advantage

of using DE over DI is that the former uses information from the whole population of learners, and not just the extreme upper and lower thirds. Thus, this parameter may be more sensitive to detect item performance.

### Learners' motivation

According to 66% of the learners surveyed in the July 2013 semester, the pace at which the quizzes were presented was about right. One or two quizzes placed after each Unit in the study guide made it possible for the learners to pace their learning and test themselves out at the same time. The January 2014 cohort echoes the same sentiment with 72% of them agreeing to the pacing of the quizzes.

Of the students who performed the quizzes, around 90% of them regarded the activity positively in the January 2014 cohort. According to 78% of them, the quizzes helped them to understand some of the topics covered in tutorials and course material. Similar results were obtained with the July 2013 batch.

All of the learners in both cohorts agree that feedback on the correct answers should be given after each quiz as a learning enhancer. And also, all learners requested that marks be given for their attempt so that it acts as a motivational tool for them to improve further. They also want some form of reward for spending time and energy in trying out these quizzes. This is something that WOU should look into as at the moment assessments are done in a traditional manner. Unfortunately only 32 % (July 2013) and 28% (January 2014) of the learners agreed that the quizzes boosted their interest in the subject matter. In short, the researcher's overall impression is that learners of Microeconomics regarded the quizzes positively.

On a lesser scale, there were learners who commented that they did not understand the some of the questions in the quizzes. This came to 12% (July 2013) and 18% (January 2014). To address this issue, the questions in the quizzes have been re-worded in the current (July 2014) semester to simplify the language used. The effects of that revision could not be covered in this paper. It is to be noted that the English proficiency of distance learning students may not be at a higher level. Interestingly, in a study conducted by Prakash (2010), those with above average English proficiency have a tendency to drop-out from their course of study due to loss of motivation.

## Conclusion

From this first experience regarding the use of the Moodle quiz module in the subject of Microeconomics, the researcher intends to generate improved quizzes suitable enough for assessing the teaching and learning of the subject. To help boost more effective, dynamic and autonomous learning, the purpose is to redesign some of the quizzes in the future to include the possibility of turning this into a tool for formative or summative assessment.

It is proven that Moodle quizzes can serve to boost effectiveness and promote learner performance, as well as change teachers' and learners' attitude towards assessment design. As an incentive to teachers, the automatic assessment of the quizzes frees up time for the teacher to concentrate on other aspects of the learning process. However, it is essential to bear in mind that the whole process should be permanently revised and updated.

It is hoped based on this study that the university can see the potential of using Moodle quizzes as an assessment tool for both formative and summative assessments.

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# **Student satisfaction and persistence: Imperative features for retention in open and distance learning**

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## **Abstract**

Predicting overall service quality elements as an evidence to student satisfaction in an open and distance learning mode was examined. It was mainly aimed at assessing services quality implemented and utilized as it was expected and experienced by students. It was also of interest to discover the links between satisfaction and grade point average, student persistence and retention. The research was conducted at Universitas Terbuka milieu utilizing quantitative approach by survey. Data was collected randomly through questionnaires. The population were 1,154 Universitas Terbuka graduates attending commencement day in May 2014. Three hundred questionnaires were distributed and 218 of them were completely returned and processed. Student satisfaction was assessed by scrutinizing the dimensions of service quality (reliability, assurance, tangible, empathy and responsiveness attributes). Methodologically, Importance Performance Analysis and Customer Satisfaction Index were first applied concurrently to measure student satisfaction and the level of its importance. Structural Equation Model was then utilized to verify imminent influencing features engaged relatable to satisfaction toward the grade point average, persistence and retention. Eight hypotheses were formed and scrutinized. Six of them were statistically validated by the analysis. It was discerned that empathy, responsiveness and reliability agreed upon student satisfaction. Persistence and retention were visibly affected by satisfaction.

**Keywords:** service quality, persistence, retention, importance performance analysis, customer satisfaction index, structural equation model

## **Introduction**

Parasuraman *et al* (1988) appraised service quality by enunciating  $Q = P - E$  (Q: service quality, P: perception and E: expectation). It implies that service quality measured the difference between what was expected from and the perception of the actual service encountered. Tan & Kek (2004) used this scheme to investigate service quality in higher education outlook using an enhanced service quality approach. This effort was imperative as many students endeavored to earn university degree failed to persist (Robert & Styron, 2009) as the service delivered was below the standard (Rojas-Mendez *et al*, 2009), including in Universitas Terbuka context (Sembiring, 2012; Sawitri & Sembiring 2013).

Issues associated with persistence/retention as a consequence of satisfaction in Universitas Terbuka are crucial with respect to maintaining the size and growth of student body (Universitas Terbuka, 2011). In 2011 it was expected students to total 550,000. The targeted number however fell considerably short of that goal and totaled

to 432,683 (Sembiring, 2014). Factors driving student satisfaction and its relations to persistence/retention from service quality perspectives (Brown, 2006; Petruzzellis *et al*, 2006; Arokiasamy & Abdullah, 2012) with Australian, Italian and Malaysian universities outlooks respectively are becoming relevant to be conducted in Indonesian context. It was the aim to therefore assess the educational service quality implemented and utilized as it was expected and experienced by students. Besides, it was of interest to elucidate the links between satisfaction along with grade point average (GPA), student persistence and retention.

### Related Literature and the Model

Satisfaction and service quality kept on attracting interest of researchers in a wide variety of disciplines (Athiyaman, 1997). In educational sector, the construct was applied to institutions of higher education (Kitcharoen, 2004). The dimensions of Service Quality (Parasuraman *et al*, 1988) consisted of reliability (consistency of services), assurance (capability of service provider), tangible (hardware infrastructures), empathy (customer centered soft environment) and responsiveness (ability to customize contents and the delivery of services) were adopted. Prior works, Ilias (2008) and Tileng (2013), gave confidence to utilize the model into Universitas Terbuka framework.

The origin notion for this study was service quality and satisfaction integrated with prominent constructs within student persistence/retention (Tinto, 1982, 1993, 1997) and student attrition (Bean, 1983 & 1985). It had made great progress in understanding determinants of service quality, satisfaction and persistence/retention (Hanaysha *et al*, 2011). Mailany (2011) and Martirosyan *et al* (2014) found that evaluation on satisfaction led to GPA.

Students seek out universities that provide personal, unique and memorable educational experiences (Archambault, 2008). Students search for program that will prepare them for career advancement. Some of them even expect to gain more established forthcoming job. By predicting those expectations, it becomes just right to establish the model combines all possible factors in service quality framework, satisfaction and their links comprehensively.

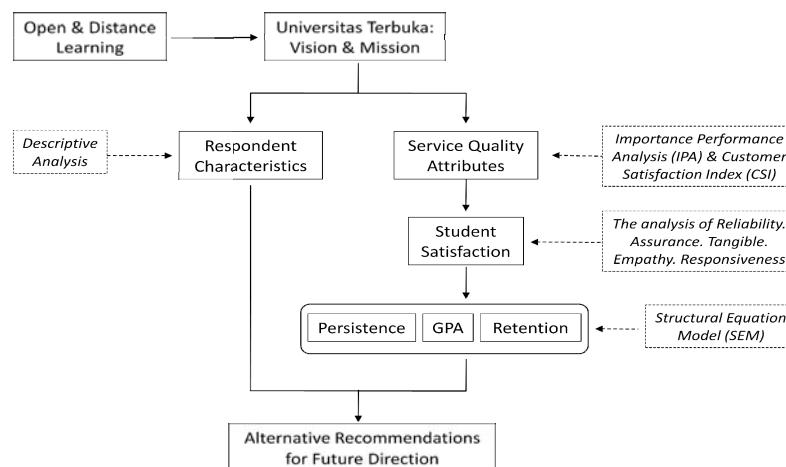


Figure 1: Conceptual Framework

By having the inclusive model, there would be a tool for measuring student satisfaction and its inference viewed from service quality outlooks. This in turn will allow the open and distance learning (ODL) institutions to acclimatize important changes to accommodate student expectations. It might also focus on institutional direction in fulfilling student needs extensively such that the University might be able to maintain/make progress on the size and growth of student body. Having considered those related literatures, this inquest comes to the proposition on the conceptual framework (Figure 1) and the basic model that will be used in this research (**Figure 4**).

## **Methodology and the Hypotheses**

Figure 4 describes features affecting student satisfaction (Y) lead to GPA ( $Y_6$ ), persistence ( $Y_{7,8,9}$ ) and retention ( $Y_{10,11,12}$ ). Satisfaction includes learning materials ( $Y_1$ ), tutorials ( $Y_2$ ), examination ( $Y_3$ ), registration ( $Y_4$ ) and general administration ( $Y_5$ ). Satisfaction will be examined by perceiving the component of Service Quality includes reliability ( $X_1$ ), assurance ( $X_2$ ), tangible ( $X_3$ ), empathy ( $X_4$ ) and responsiveness ( $X_5$ ) attributes. The instruments consisted of 2x25 questions related to satisfaction and the level of its importance plus two additional questions for assessing persistence and retention. The study utilized quantitative approach and addressed conceptual framework, the model, hypotheses, survey and sampling, data collection and processing, and drawing the conclusion.

Variables involved were explored through questionnaires (Tjiptono & Chandra, 2011). Survey was implemented to collect data from respondents (Singarimbun & Effendi, 1989). Simple Random Sampling technique was chosen to select eligible respondents (Sugijono, 2012). Importance Performance Analysis (IPA) and Customer Satisfaction Index (CSI) were utilized to get the message on the satisfaction level along with its importance (Kitcharoen, 2004; Silva & Fernandez, 2010). Structural Equation Model (SEM) was used to detect probable relations among variables engaged (Wijayanto, 2008).

These approaches methodologically scrutinize *hypotheses* (**H**) consisted of eight entries (Figure 2): Satisfaction is influenced directly by reliability ( $H_1$ ), assurance ( $H_2$ ), tangible ( $H_3$ ) empathy ( $H_4$ ) and responsiveness ( $H_5$ ). GPA ( $H_6$ ), persistence ( $H_7$ ) and retention ( $H_8$ ) are also influenced directly by Satisfaction.

## **Results and Arguments**

Before arguing the results, it is beneficial to portray the traits of respondents (Table 1). This will offer enhanced perspective for the results.



Table 1: Characteristics of Respondents

No	Description	Notes
1	Students domicile	12 Regional Offices (out of 39)
2	Population Minimum sample	1,154 120
3	Questionnaires (sets) - Provided, distributed - Returned, processed	300 218
4	Grade Point Average	2.00-2.49 = 11%; 2.50-2.99 = 62%; 3.00-3.49 = 23%; 3.50-4.00 = 4%
7	Age (Year)	≤ 25 = 8%; 26-30 = 19%; 31-35 = 39% 36-40 = 21%; 41-45 = 11%; ≥ 46 = 2%
8	Professions	Public Service = 35%; Teacher = 46% Private Sector = 4%; Entrepreneur = 6%; Others = 9%

The results of analyses are detailed in the following explanation and figures. Figure 2 exemplifies two of hypotheses are not validated ( $H_2 = 0.26$  and  $H_3 = 0.95$ , as they are  $\leq 1.96$ ,  $\alpha = 5\%$ ). These mean that satisfaction is not influenced by assurance and tangible aspects. Conversely, the other six hypotheses are confirmed by the analysis. These mean satisfaction is directly influenced by reliability ( $H_1 = 2.24$ ), empathy ( $H_4 = 2.00$ ) and responsiveness ( $H_5 = 2.61$ ). GPA ( $H_6 = 2.05$ ), persistence ( $H_7 = 10.52$ ) and retention ( $H_8 = 10.36$ ) are also directly influenced by satisfaction.

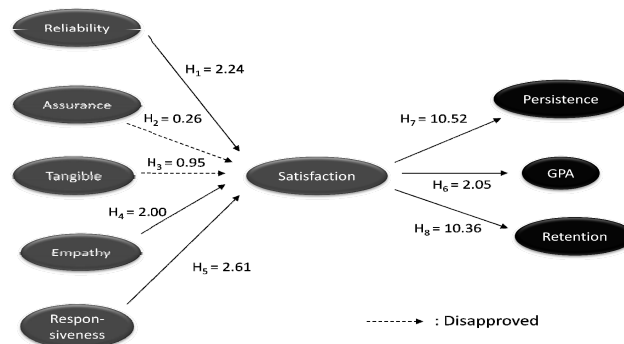


Figure 2: The  $t$ -Value of the Model

Before describing the end results, it would be outshined to reveal satisfaction level and the degree of its importance derived from IPA and CSI structure. The analysis generates position of service quality components in accordance with related quadrants to see the degree of its importance (Figure 3).

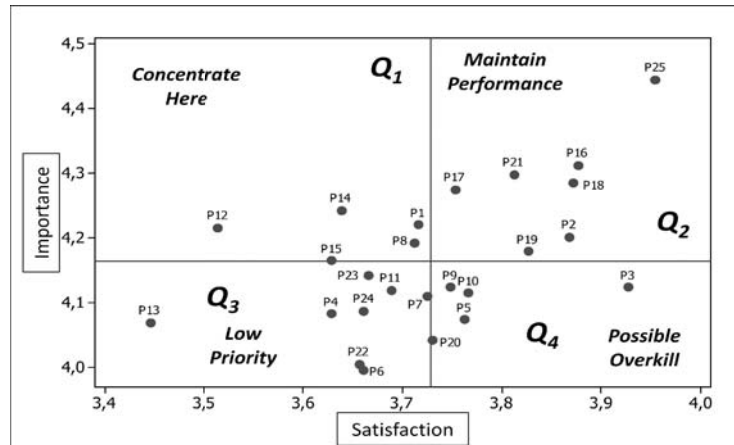


Figure 3: The IPA Chart of the Model

Focus on Figure 3 and refer to each quadrant ( $Q_1$ ,  $Q_2$ ,  $Q_3$  and  $Q_4$ ).  $Q_1$  enlightens five points (Ps) that should be seriously taken into account:  $P_{12}$  ( $X_{43}$ : handling complaints),  $P_{15}$  ( $X_{53}$ : access to management),  $P_{14}$  ( $X_{52}$ : communication),  $P_8$  ( $X_{32}$ : facilities) and  $P_1$  ( $X_{11}$ : curriculum). “Concentrate Here” indicates that satisfaction is low whereas the degree of its importance is high. This means that the University must pay attention gravely to these five points so that student expectation can be encountered; for that reason students can be maintained up to finish.

$Q_2$  explains seven points should be intensely recognized:  $P_{25}$  ( $Y_{10}$ : study up to finish),  $P_{16}$  ( $Y_1$ : learning materials),  $P_{18}$  ( $Y_3$ : examination),  $P_2$  ( $X_{12}$ : relevance),  $P_{19}$  ( $Y_4$ : registration),  $P_{21}$  ( $Y_6$ : GPA),  $P_{17}$  ( $Y_2$ : tutorials). “Maintain Performance” is a symptom of both satisfaction and the degrees of its importance are placed in the high level. The University therefore must take care of these aspects thoughtfully so there will be more students getting the advantages of these conditions and in chorus they will accomplish their study with intent.

$Q_3$  explicates eight points should be cautiously acquainted:  $P_{13}$  ( $X_{51}$ : feedback mechanism),  $P_4$  ( $X_{21}$ : student service),  $P_{22}$  ( $Y_7$ : re-register regularly),  $P_6$  ( $X_{23}$ : fees),  $P_{24}$  ( $Y_9$ : active in study group),  $P_{23}$  ( $Y_8$ : active in tutorials),  $P_{11}$  ( $X_{42}$ : support from faculty),  $P_7$  ( $X_{31}$ : website). “Low Priority” is an indication of satisfaction and the degree of its importance is in the low category. The University should intelligently categorize these aspects as “the next” focus after concentrating on critical points in  $Q_1$  and  $Q_2$ .

In  $Q_4$ , five points are classified as “Possible Overkill”:  $P_3$  ( $X_{13}$ : reputation),  $P_{10}$  ( $X_{41}$ : attention from staff),  $P_5$  ( $X_{22}$ : schedules),  $P_9$  ( $X_{33}$ : cleanliness),  $P_{20}$  ( $Y_5$ : general administration). “Possible Overkill” indicates that the service quality provided is considered less important but respondents found them in high satisfaction degree. Here, attention on the attributes included can be less-focussed so that the University can save costs by redirecting them to take up vital points encountered in  $Q_1$  and maintaining crucial points in  $Q_2$ .

Having positioned variables/dimensions in related quadrant based on IPA-CSI, we are in the position of relating loading factors of the model. This is to observe the power of relations of each variable involved under SEM (Figure 4) to figure out the end results.

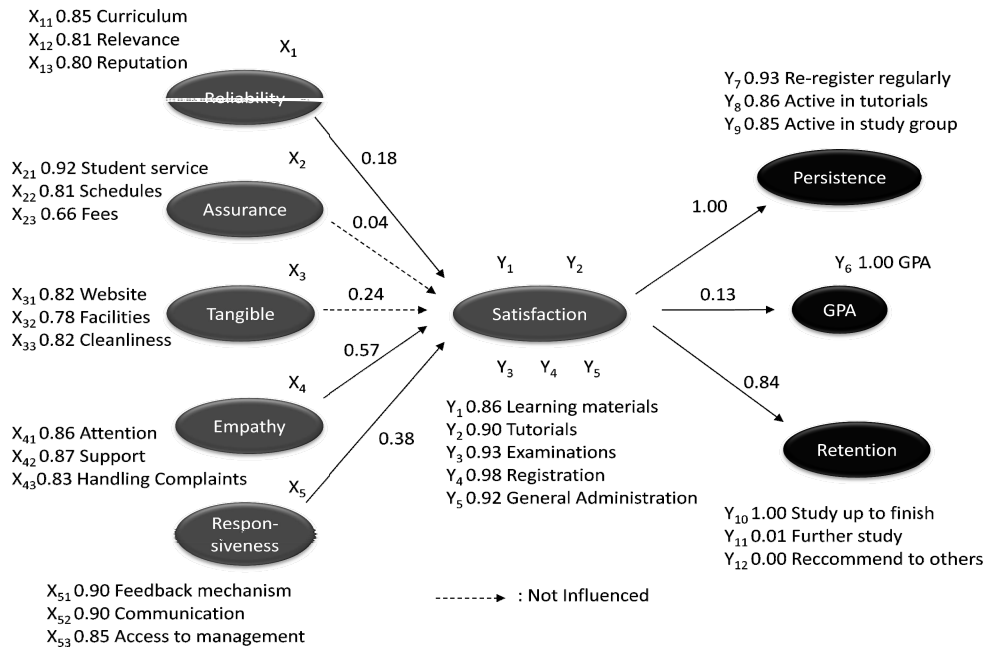


Figure 4: Loading Factor of the Model

Figure 4 typifies five foremost end results. The first upshot is relatable to the three variables directly influenced satisfaction: (i) empathy ( $X_4 = 0.57$ ), (ii) responsiveness ( $X_5 = 0.38$ ) and (iii) reliability ( $X_1 = 0.18$ ). The second is related to the ranks of dimensions in empathy ( $X_4$ ): (i) support from faculty ( $X_{42} = 0.87$ ), (ii) attention from staff ( $X_{41} = 0.86$ ) and (iii) handling complaints ( $X_{43} = 0.83$ ). The dimension in responsiveness: (i) feedback mechanism ( $X_{51} = 0.90$ ), (ii) communication ( $X_{52} = 0.90$ ) and (iii) access to management ( $X_{53} = 0.85$ ). Standings of dimensions in reliability: (i) curriculum ( $X_{11} = 0.85$ ), (ii) relevance ( $X_{12} = 0.81$ ) and (iii) reputation ( $X_{13} = 0.80$ ).

The third findings, respondents put the order of satisfaction (Y) from the provision of services: (i) registration ( $Y_4 = 0.98$ ), (ii) examination ( $Y_3 = 0.93$ ), (iii) general administration ( $Y_5 = 0.92$ ), (iv) tutorial ( $Y_2 = 0.90$ ) and (v) learning materials ( $Y_1 = 0.86$ ). The fourth results are associated with the power of relations between satisfaction (Y) and GPA ( $Y_6$ ), persistence ( $Y_7, Y_8$  and  $Y_9$ ) and retention ( $Y_{10}, Y_{11}$  and  $Y_{12}$ ). Figure 4 clearly validates satisfaction significantly has an effect on persistence (1.00) and retention (0.84). However, satisfaction impinges on GPA is less significant (0.13).

The fifth effect is on the dimensions of persistence, inhabited orderly by: (i) re-register regularly ( $Y_7 = 0.93$ ), (ii) active in tutorials ( $Y_8 = 0.86$ ) and (iii) active in study group ( $Y_9 = 0.85$ ); while in retention, only study up to finish ( $Y_{10} = 1.00$ ) holds. Further study ( $Y_{11} = 0.11$ ) and recommends to other ( $Y_{12} = 0.00$ ) seem to be statistically excluded from the analysis. Further inquest is required to discover reason why "further study" and "recommend to others" are not valued yet (Note: the analysis also proved goodness fit of model was granted).

## Concluding Remarks

Delivering quality service has become an important goal for higher education institutions (Athiyaman, 1997), including for ODL institutions. The goal is to maintain student body for continuation and comply with student expectation concurrently. The use of IPA-CSI, as indicated by Silva & Fernandes (2010) and Tileng (3013), have given comprehensible direction at which points of services should be acutely focus on and in which other points should be wittingly maintained concomitantly. This approach also designated in which points the institution might commit less attention and at which points the institution might even reduce the result achieved to minimize unintended resource spent.

SEM induced that the University has to take considerable notice on empathy, responsiveness and reliability intentionally as these are roots to satisfaction lead to persistence/retention. It signifies students to re-register regularly and finish their study on purpose. Issues on assurance and tangible are no longer problems. Nonetheless, assuring procedures are improved in regular base and maintaining facilities will augment the quality of services. These will show ways to satisfaction as highlighted by Parasuraman *et al* (1988) and elaborated by Tan & Kek (2004). Regrettably, the result does not show significant correlation yet between satisfaction and GPA; further study is crucial to reveal how it comes that way.

It can also be brought to a close that the model is in *good fit* category. With a selection of constraints, it can be wrap up that this upshot will make available openings for the University to be more contributive in eradicating limitations for Indonesians to acquire right of entry to higher education. If this understanding is emblematical universally, administrators and faculty would be well-advised to reflect on satisfaction as a hint to persistence/retention. If student satisfaction can be accomplished, this insinuates that Universitas Terbuka is on the right path to uphold its mission in making higher education open to all. The University will be poised of becoming world quality institution in the the provision of university inventions under ODL by stipulating flexible quality education.

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# **Factors affecting the drop-out rate on the Engineering degree programme at the Open University of Sri Lanka**

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## ***Abstract***

The Open University of Sri Lanka (OUSL) has been offering professional engineering programmes at Diploma and Degree levels since 1985; this probably would have been the first ODL institution ever to offer hard engineering subjects through ODL. Although the OUSL has its network of centers scattered throughout Sri Lanka, some study programmes like the Engineering Degree programme are conducted in a few selected regional centres; students have learnt specializations including, Civil, Electrical and Mechatronics degrees and over 650 engineering graduates have passed out during the past decade and half.. This however is relatively a small number compared to the number of students registered for the programme on account of unusually high drop-out rate. This paper purports to examine the factors influencing the incidence of high drop-outs. The paper identifies that the mismatch between entry qualifications and expectations, problems in assimilating to ODL mode of learning, difficulties in updating technical skills and knowledge for old-employed students, poor language proficiency, job related constraints, physical distance to the central campus, not utilizing on-line teaching pedagogy fully, old age at entry levels and failing to make a balance between leaning – work-family obligations are some of the reasons for the high incidence of drop outs.

Key-words: Under-graduate Drop-out, Engineering Degree, ODL methodology

## **The Institute and the Programm**

The Government of Sri Lanka, recognizing the need to increase access and ensure equity to higher education of every citizen established the Open University of Sri Lanka (OUSL) in 1980. The OUSL created history by being the first and only National University in the country to offer academic programmes using distance education methodologies. At the time of establishment, the primary objective of the OUSL was to provide higher educational opportunities for employed adults.

Presently OUSL has four Faculties; namely, Faculties of Education, Engineering Technology, Humanities & Social Sciences and Natural Sciences. There are 19 academic departments operating within these faculties and they offer about 60 programmes of study from certificate to post graduate levels. The Faculty of Engineering was perhaps the first in the world to offer Hard Engineering Programmes through distance education methodologies. In mid nineteen eighties, the Faculty started offering Diploma programmes in Engineering. From early nineteen nineties, the Faculty launched the Engineering Degree programme which was augmented to cover all the major hard engineering specializations including Civil, Computer, Electrical, Electronic, Communication, Mechanical, Mechatronics and Textile engineering.

## OUSL Centre Distribution in Sri Lanka



Figure-1 OUSL Centre Distribution

With a view to expand opportunities horizontally and laterally, the OUSL operates through a network of 6 Regional Centres, 19 Study Centres and 6 Teaching Centres scattered throughout Sri Lanka covering all nine provinces (See Figure-1).

The delivery of all major programmes is operationalized via all six Regional centres. However, due to limitations in resources, the University is not in a position to conduct academic activities of some programmes in all centres. The Engineering degree programme is one such programme offered in a limited number of Regional / Study centres on account of compulsory laboratory work, field work, design work and other practical components.

The minimum duration of the engineering degree programme is five years and the Institution of Engineers - Sri Lanka, the professional body responsible for maintaining professional standards of engineering education in Sri Lanka, after a comprehensive review has recognized the OUSL engineering degree as being on par with the other engineering degrees offered by the four other national universities.



Thus far about 650 OUSL engineering graduates have joined the engineering profession in Sri Lanka and abroad. However, as far as the number of students registered as well as the output of engineering graduates by the other universities is concerned, this graduate output is insignificant. It is especially so when one examines the large number of students dropping out in the midway and others taking unusually extended time to complete.

### **The Objectives**

This research study purports to identify the factors influencing the drop out of engineering students which are presumably different from the other programmes; a sample consisting of 400 engineering undergraduate students dropped out during the period from 2012 to 2013 have been selected for this purpose. The total number of students who dropped out from the engineering degree programme during 2012/13 was 1258. The sample size of 400 considered for this study represents 31.8% of the total drop-outs.

### **The Methodology**

Nonetheless collecting information on students who have already dropped out was an insurmountable challenge. Two attempts to collect data from them through a questionnaire survey was a non-starter as less than ten people responded to the questionnaire. To overcome this obstacle we contacted them over the phone, explained them the importance of this study and made an appointment to meet them and /or interviewed them over the phone. After adopting this approach, 22% of the sample (88 students) responded via post and / or e-mail and 36% (144 students) responded via telephone interviews and the balance 42% of the responds (168 students) had to be contacted through direct interviews.

### **Discussion of Findings:**

The ensuing sections present and discuss the findings of this study. It highlights a set of major factors contributing to the incidence of dropouts. These include the aspects of entry qualifications, inability to assimilate to self-learning and their performance, effects of physical distance on performance, mismatch in the targeting of the programme by the university, false expectations of the students and failing to assure regional equity, inadequate language proficiency and financial and social constraints..

### ***Entry Qualifications***

Sri Lanka has a cherished history pertaining to education. In October 1946 the Parliament of Sri Lanka enacted a law to provide universal free education. Accordingly, the Government of Sri Lanka is providing education to all Sri Lankan children above five years of age, free of charge, starting from primary levels to university education. Despite the fact that this policy had a colossal fiscal burden, it continued unabated resulting in a commendable outcome. The literacy rate of Sri Lanka has one of the highest in Asia (>90%), a figure compatible with the literacy rates of some of the developed countries.

The Government of Sri Lanka has implemented the free education policy 100% at primary and secondary education levels; however there are limitations in implementing the same at university education level on account of limited number of places available in the national university system. For instance, in 2012, around 150,000 students have passed the General Certificate in Education, Advanced Level (GCE/AL) examination. However, only about 24,000 were provided admission to 14 national universities. This disparity has been responsible for stiff competition to enter into a national university that provide education free of cost of tuition.

Table-1 University Entrance Minimum 'Z' score 2012  
Source: University Grants Commission, Sri Lanka

Programme/District	Medicine	Agriculture	Bio Science	Engineering	Computer Science	physical Science	Management	Commerce
Colombo	1.9039	0.9938	1.3214	1.8650	1.5961	1.1225	1.5484	1.5166
Gampaha	1.7323	1.0223	1.2408	1.6667	1.5319	1.0552	1.4971	1.4761
Kalutara	1.8611	1.0456	1.3444	1.6910	1.5459	1.1139	1.4235	1.4167
Matale	1.7108	1.8813	0.9404	1.6231	1.4481	1.0170	1.2110	1.2195
Kandy	1.8629	1.0455	1.3354	1.7717	1.5125	1.0674	1.4449	1.4380
Galle	1.8520	1.0566	1.3353	1.8405	1.5695	1.1135	1.5047	1.4912
Matara	1.8881	1.0405	1.3742	1.8914	1.5949	1.1418	1.4444	1.4441
Hambantota	1.8898	1.0473	1.2548	1.8150	1.5840	0.9750	1.4499	1.4149
Jaffna	1.7321	0.9402	0.8188	1.7694	1.4992	0.9970	1.1802	1.1524
Vavunia	1.6877	0.5991	0.2786	1.5022	0.9255	0.3154	1.2001	1.1546
Kurunegala	1.7840	1.0170	1.2584	1.7086	1.5014	1.0476	1.3836	1.3724
Badulla	1.7466	0.9910	1.1442	1.5905	1.4158	0.8211	1.4039	1.3747
Kegalle	1.6394	1.0561	1.3138	1.5525	1.3484	1.0495	1.3525	1.3419

When it comes to engineering education, the competition is even higher and the best students with maximum scores enter into four engineering faculties of the national universities. Table-1 shows the district wise minimum “Z” score values announced by the University Grants Commission (UGC) to enter into different programmes of study at conventional universities. The value for engineering degree is as high as 1.9 or 1.8 and a

student will have to obtain three “A” passes at GCE/AL examination to reach this “Z” score value.

The minimum educational qualification required to enter into the engineering degree programme of the Open University of Sri Lanka is three simple passes in Physics, Chemistry and Combine Mathematics at GCE/AL examination. Analysis of entry qualifications showed that almost 50% of those who dropped out had entered the engineering degree programme of the Open University with this minimum entry qualification. About 30% of those who registered for the engineering degree at OUSL got admission to follow Physical Science degree programmes at conventional universities where the entry grades and ‘Z’ scores are much higher than the three simple passes; however, they opted to follow an engineering degree at OUSL.

With respect to this category of students, only 2% drops out and others continued their studies at OUSL. These findings indicate that one reason for dropping out from OUSL engineering degree programme is related to the low entry marks and high competencies expected of students who registered. As the level of competencies imparted is compatible with the conventional universities offering engineering degrees, those having minimum qualifications seemed to find it difficult to reach the expected performance levels. Candidates without a fair amount of analytical abilities find it difficult to keep up with the pace at which they are required to perform in the engineering degree programme.

#### ***Delivery Mode and Student Performance***

In 2012, 3631 students registered to follow the engineering degree programme. There were 1122 (31%) new students and 2507 (69%) continuing students who had renewed their registration for the academic year 2012. Out of the 3631 students, only 2373 students renewed their registration to continue with the engineering degree programme in the academic year 2013. In other words, 1258 students or 34.7% of the students registered in 2012 have dropped out from the programme by end of the academic year. Among the 1258 dropped out students, there were 704 (56%) newly registered students and the balance 554 (44%) belong to continuing students, i.e. students who were in the engineering degree programme for more than one academic year. These numbers indicate that 62.7% of the newly registered students had dropped out from the programme within the first year of study, whereas only 22.1% dropped out from among continuing (re-registered) students. The data for this analysis was taken from secondary sources maintained by the student affairs department and the Open University Management Information System (OMIS). The sample as stated elsewhere was 400 students (31.8% of the total drop-outs). Out of this 400, about 225 students (56%) were from new drop-outs and the balance 175 students (44%) were from among continuing (re-registered) students.

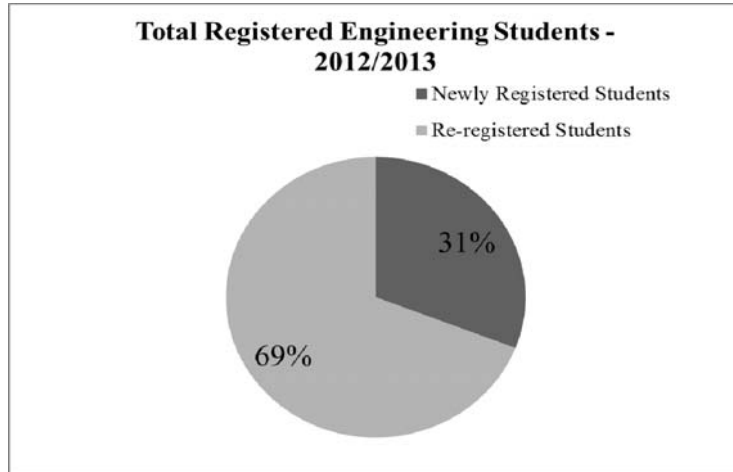


Figure-2 Newly registered & Reregistered Engineering student distribution

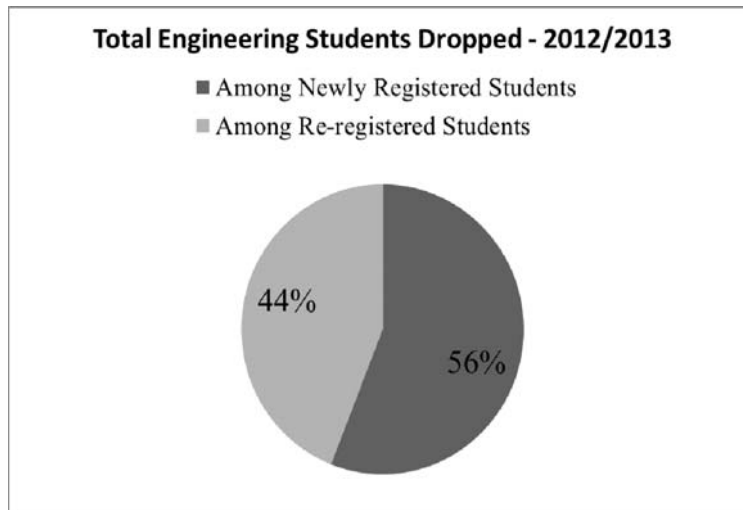


Figure-3 Newly registered & Reregistered distribution of Dropped out students

Source: University data (OMIS)

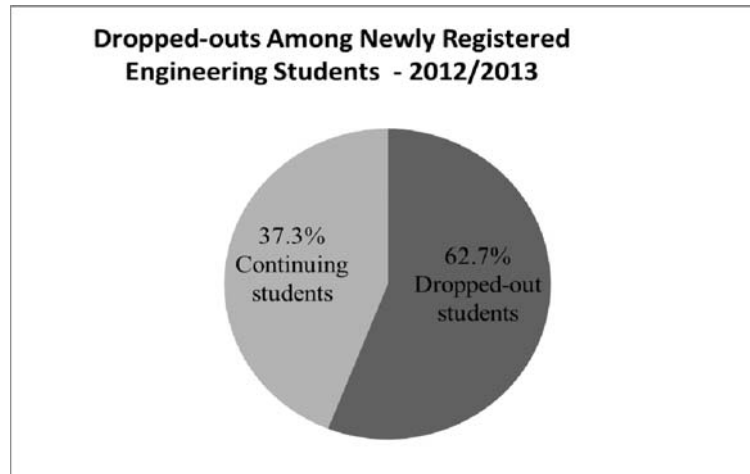


Figure-4 Dropped-outs among newly registered students

Source: University data (OMIS)

About 60% of these students were of the view that the Open Distance Learning (ODL) was quite alien to them. They found it difficult to cope up with the ODL methodology used by the Open University. The intense competition in the GCE/AL examination has created another anomaly where students are accustomed to a leaning method dependent heavily on private tuition where they are coached to answer questions in an examination setting. In this setting the scope for self-study is very limited and students are not trained to think, be creative, analytical and independent. Conversely the OUSL's engineering degree is designed to be heavily based on self-study where students are expected to read texts, do assignments and experiments without much help from others. Those who joined the conventional universities have a much higher degree of face to face interaction with their teachers and peers. The transition from secondary school education, to independent studies in engineering education in the conventional universities is relatively smooth. The OUSL engineering students find this situation quite anomalous.

Majority of them indicated that despite the pre-registration seminars where ODL methodology was explained thoroughly, they still expected direct support of academic staff in their learning; this is what they received throughout their school education. This however is against the very concept of self-learning. Thus one of the main complaints of the students was 'need for more contact sessions'. The fact that they were not used to self-study with printed course materials provided to them was emphasized throughout the interviews.

#### ***Adverse effects of Physical Distance***

About 160 students (40%) indicated that they were working in outstations, which cuts them off from their peers. This question of isolation appears to have had an adverse impact on those who work in sites far away from the central campus. Those who are working in Colombo and suburbs are better-off as they could contact each other easily;

they could do group studies and work better in their group assignments. Therefore, there is a relative merit in this argument and a mechanism has to be developed using interactive-web to support this category of students.

This situation was further complicated by the fact that these students did not have superior officers with required academic background to seek help to clarify difficult sections in subject contents. Moreover such stations also suffer from lack of relief staff and consequently it is always difficult to obtain leave to attend day-classes, laboratory work, field-work and design classes held at the central campus.

Attending limited day-schools and other academic activities can be problematic for some due to workplace commitments. Although the day-schools were scheduled during weekends and public holidays, most of them are working on Saturdays. Many students stated that they did not have online support or discussion forum for some subjects they had registered for. For few subjects with supplementary online support also, they did not receive the expected support and the response time from their tutors was too long. Clarifying technical matters over the phone from the academic was not practical.

Many indicated that at the initial stages they came across difficult sections in the printed lesson materials received at the time of registration. They did not have a way to clarify them and without understanding initial basic concepts, they could not proceed further. As a result, they were frustrated as they could not answer the take-home assignments and submit them on time. The undue stress on eligibility to sit for final examinations is linked to their submission of assignments and obtaining pass marks. This was an archaic concept rarely practiced in the other ODL universities. Together these lapses resulted in the abandoning of the engineering degree programme by students.

### ***Intended vs Target Beneficiaries- Mismatch in the Expectations***

The primarily aim of the OUSL was to provide higher educational opportunities for employed adults. However, statistics show that more than 60% of students are not employed at the time of entry into the engineering degree programme. About 50% of the sample size of dropped out students was unemployed. For this group of drop outs, the claim of heavy workplace commitments was out of question.

Their responses indicated that they joined the engineering programme with false expectations, not realizing the efforts and commitments required to follow an engineering degree programme. It may be possible that they may be comparing the mode of delivery of the other engineering degree programmes of the national universities where more contact sessions are provided by the academia.

According to the statistics obtained in 2012, the average age of entry to the engineering degree programme of the Open University was 25 years. The average age of the sample of dropped out students considered in this study was 29 years. Also, about 50% of the dropped out students were employed. The findings of the study indicated that one main

reason for the employed students to record a high drop-out rate is their workplace commitments. As for unemployed students, the main reason for dropping out was their inability to cope up with ODL methodology adopted to offer the engineering degree programme.

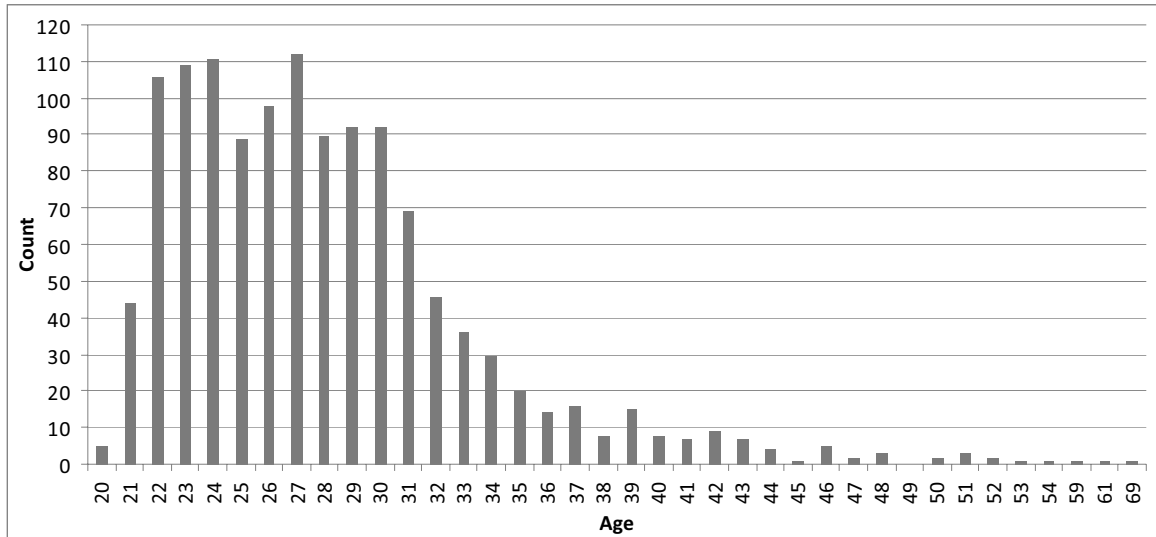


Figure-4 Age wise distribution of Dropped out students from the engineering degree

Source: University data (OMIS)

The average ratio of male to female students enrolled for the engineering degree programme from 2009 to 2013 is 71:29. The ratio for the Faculty of Education was a diametrically different 22:78; it is similar for the Faculty of Natural Sciences with a ratio of 27:73. As for the faculty of Humanities and Social Sciences the relevant ratio is 48:52. Out of the total registered engineering student number of 3631 in 2012, as much as 932 (25.7%) were female students. From the total number of 1258 dropped out engineering students in 2012, only 247 (19.6%) were females. This indicates that the drop-out rate among female engineering students is less than that of male students. Although the number of female students registering for the engineering degree programme is less than 30% of the total, once registered, they tend to assimilate and continue with the ODL environment.

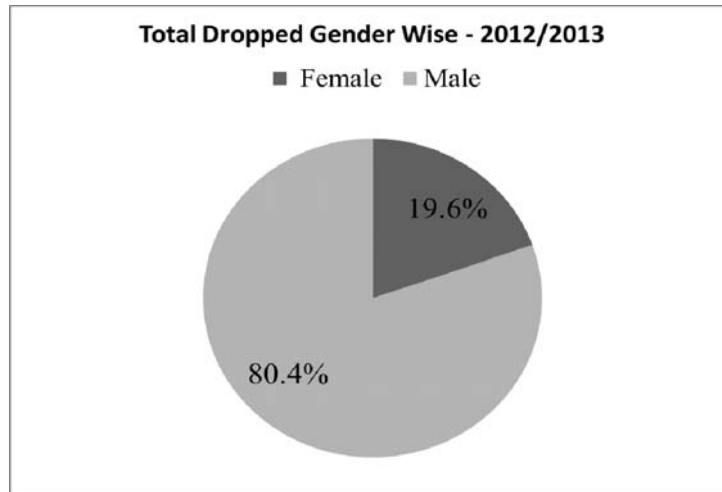


Figure-5 Gender wise distribution of Dropped out students from engineering degree

Source: Survey data

### ***The Ladder of Opportunities failing***

One of the alternative roots for the Engineering programme was the completion of the Foundation courses offered by the OUSL. Among 3631 students registered for engineering degree in 2012, there were 937 (25.8%) students who joined the degree after fully or partially completing the Foundation courses. Among 1258 drop-outs, there were 209 students (16.6%) who joined after completing the OUSL Foundation courses.

Those who dropped out, after completing OUSL Foundation, have indicated that one main reason why they could not continue with their studies was due to inability to cope up with the subject contents. When the academic history of those dropped out after completing OUSL Foundation courses was analyzed, it revealed that their performance was not very satisfactory throughout their studies at OUSL. After long years they dropped out from the programme, as they no longer could cope up with the engineering subject contents. This is something bit unbelievable for ODL planners at the OUSL. It is therefore necessary to isolate the alignment problems that exist between the course contents and selection of learners for the Foundation courses vis-à-vis the engineering degree programme.

More than 75% of the sample of dropped out students had obtained minimum of three passes at GCE/AL examination in the physical science stream. More than 60% of those who had joined the engineering degree programme, after completing a diploma programme elsewhere, have dropped-out at the end of the first year. This finding goes against the expectation of providing opportunities for 'lateral entry'. Those who join the engineering degree after completing an engineering Diploma elsewhere are given exemptions for subjects at first and second year of the degree programme. This knowledge is essential to proceed with subjects at higher levels. The majority had completed their engineering diploma elsewhere more than five years ago. They had



accepted that they could not recall the pre-requisite knowledge to follow subjects they registered at higher levels.

### ***Failing to ensure regional equity***

Engineering degree is a professional degree and the Institution of Engineers, Sri Lanka has recognized the OUSL engineering degree, enabling OUSL engineering graduates to obtain the IESL membership and become Chartered Engineers after fulfilling required experience criteria. The curriculum of the OUSL engineering degree is inbuilt with laboratory work, field work, design work and compulsory industrial training, in addition to the theoretical content, as stipulated by the IESL. Establishing engineering laboratories equipped with modern equipment to provide students with required practical knowledge is very costly. Therefore, all higher level engineering laboratories are available only in Colombo. Limited laboratory facilities are available in the other Regional Centres on account of huge capital investments requirement for equipping the laboratories. Therefore, all engineering students will have to come to Colombo to carry out laboratory/practical work, especially in the final two years of the programme.

Consequently, students staying in and around Colombo get an added advantage over outstation students. This fact is very well reflected in the findings of the study which indicated that the drop-out rate of outstation students is well above the average of 20% who live in and around Colombo.

### ***Medium of instruction***

The degree programmes offered by the OUSL in general are offered in all three languages i.e., Sinhala, Tamil and English. Of them Sinhala and Tamil are the two national languages while English is referred to as the official Link Language. Some degree programmes are available in all three languages in the first year of study and at higher levels they are offered in the English medium. This transition allows students to gradually change over to the link language. However, the fact that the Engineering degree is offered only in English language from the first year onwards makes it a barrier to students without required proficiency to communicate technical subjects in the medium of English. Almost 98% of the students in the sample registered for the engineering degree programme after completing GCE/AL examination in a national language. A sizeable share of the sample (40%) who dropped out indicated that lack of language proficiency as a major barrier for their continuation of studies.

### ***Social / Financial Constrains***

More than 60% of the sample that dropped out from the engineering degree programme were married and found it difficult to strike a balance between studies and their work-place and family commitments. This is partly a problem of poor time management which could have been infused in the orientation programme itself. A marginal 10% of the sample indicated that they find it difficult to pay tuition fee at specified times. On the whole there have been a multitude of factors that influence the performance of candidates registering for the Engineering degree programme. The paper lists the following recommendations to redress the inordinate drop out rates of this study programme.

### ***Recommendations***

1. Introducing a selection test to recruit students to the engineering degree programme (allow only those who are capable, having necessary aptitudes, commitment)
2. Introducing a compulsory component of face to face programme for newly registered engineering students to make their assimilation to ODL delivery easy.
3. Introducing contact sessions during the first few months where basic concepts and subject contents may be explained and clarified.
- 4 Strengthening online student support for all engineering subjects through the MOODLE learning platform and ensure student queries are replied without delay.
- 5 Encouraging students to establish peer groups and provide technical support to have discussion forums for them.
- 6 Providing trilingual glossaries alongside the printed course materials
4. Obtaining assistance of the IESL to enlist assistance of Engineers working outstations (for academic support to engineering undergraduates as teachers, mentors and trainers).

# Student utilization of UT-Online

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Universitas Terbuka  
Indonesia

## ABSTRACT

UT-Online is a student learning support service based on information and communication technology provided by Universitas Terbuka Indonesia (UTI). This study aimed to analyze (1) the characteristics of students who use UT-Online, (2) the students' awareness and knowledge of UT-Online, (3) the behavior of students in using UT-Online, and (4) the attitude of students toward UT-Online. The method used in this study was a survey of UT-Online users. The population in this study was all students of UT-Online users. The sample was 904 students who return the completed questionnaires that were sent via email to 3000 UT-Online users. The results of the study were in the following findings: (1) the students' intensity of using UT-Online was characterized by the ease of access to the internet, age, and sex, and there was a tendency that the number of UT-Online users increased day by day; (2) each facility at UT-Online had a diverse level of awareness, use, mastery, and training needs; (3) each facility of UT-Online could be classified based on the number of users, frequency of use, duration, time and place of access; (4) the students attitude toward UT-Online were positive, in the score of 3.06 on a scale of 1 to 4.

**Keywords:** UT-Online, Online Tutorials, ITV-UT, access behavior.

UT-Online is a student support services based on Information and Communication Technology (ICT) provided by Universitas Terbuka, Indonesia (UTI). UT-Online have been developed gradually. In 1997, UTI implemented e-learning with the goal was to increase student interactivity with learning materials, student to tutor, and student with student (Belawati, 2003). Furthermore, Belawati stated that UTI's e-learning was implemented through three types of applications, namely: the provision of teaching materials supplement (web-based supplement) or known as the web supplement, network-based tutorials (web-based tutorials) known as electronic tutorial, and online courses (web-based courses). UT-online, which was launched in 2002, is a further development of the e-learning services. UT-Online, at the beginning of its development, was in the form of what was known now as the online tutorial. In 2007, UT-Online experienced a new development which was that in addition to providing academic services also offering administrative services (Zuhairi, Adnan, & Thaib, 2007). Academic services included digital libraries, online information for teacher (GPO), learning object materials (LOM), ITV-UT (internet-based television), and dry laboratory (dry lab). Administrative services that had been developed include an online bookstore, a UTI information service system which was better known as CRM (Customer Relationship Management), and online registration service. All services, both related to the academic and administrative processes, were included in the UT-Online at [www.ut.ac.id](http://www.ut.ac.id).

Various studies related to UT-Online service had been carried out by researchers at UTI. It was astonishing that these studies were still around online tutorials, which forms the beginning of the development of UT-Online, though the online tutorial was only one feature of many features that were available on the UT-Online. Some of these studies were summarized as follows:

- Minrohayati (2010) examined the aspect of participation in online tutorials and concluded that out of 81 students who registered online tutorial there were 51.47% of the students activated (login) in the tutorial online service, 31.05% were active in forum discussions, and only 17.62% did the online tutorial tasks.
- Royandiah & Hermawati (2011) reported that the level of participation in the online tutorial only reached 2 to 6% of the students and according to students' opinion the participation in online tutorial was contributed to learning outcomes.
- Agustina & Bimo (2010) described that the students' inactivity in online tutorials were due to the fact that most of the students were workers and have limited time to interact in an online tutorial.
- Hendrian (2009) reported that the level of student satisfaction towards tutorial online as a learning tool, reliability, speed of service response, and certainty were 64.5%, 87.4%, 73.2%, and 83.3%, respectively.

It appeared that although UT-Online had developed more than 15 years and the features of UT-Online were already growing rapidly, yet the researches about the UT-Online were still related to online tutorials and focuses on student participation and response. No studies that examined the students' utilization of UT-Online comprehensively. In fact, a study of the utilization of UT-Online would be of much use to improve UT-Online and gave direction in the future development of UT-Online. This study tried to analyze the pattern of utilization of UT-Online comprehensively. Since many services were provided at UT-Online, the study was limited only to academic services, namely the services which were directly related to the student's learning process. These included online tutorials, online enrichment courses, ITV-UT, journals, digital libraries, virtual reading room, online information for teachers, learning object material (LOM), and dry laboratories. This paper analyzed (1) the characteristics of UT-Online user students, (2) knowledge to UT-Online, (3) students' access behavior in using UT-Online, and (4) attitude toward UT-Online.

The population of this study was all students of UT-Online users. The sample study was 904 students who returned the completed questionnaires that were sent via e-mail to 3000 users of the UT-Online. The sample was taken in October 2013 using a questionnaire which consisted of 22 questions. Students responded to the questionnaire by clicking on the provided answer choices.

## RESEARCH RESULTS

### 1. The Characteristics of UT-Online Users

The Table 1 below was a comparison of characteristics between UT-Online users (based on a sample of 904 students) and a population of UTI's students within the same period in the 2nd half of 2013. The comparison was used to get the contrast between the UTI's students who used UT-Online and the UTI's students in general.

Table 1  
Comparison of Characteristics between UT-Online Users and UTI Students in General

Characteristics	UT-Online Users (A sample of 904 users taken in 2013)	UTI Students (Condition in 2013)
Age	Median = 25	Median = 26
Sex	Male = 52.5% Female = 47.5%	Male = 48.6% Female = 51.4%
Working Status	Employed = 86.7% Unemployed = 13.3%	Employed = 71.1% Unemployed = 28.9%
Marital Status	Married = 31.1% Unmarried = 68.9%	Married = 39.64% Unmarried = 60.36%
Domicile	Abroad = 3.5%	Abroad = 1.5%
Distribution of Students Based on First Year Enrollment	Less than 2010 = 8.7% 2010 = 8.6% 2011 = 11.9% 2012 = 18.9% 2013 = 51.9%	Less than 2010 = 50.0% 2010 = 7.2% 2011 = 5.2% 2012 = 12.7% 2013 = 16.9%

Table 1 revealed some interesting findings. UT-Online users were characterized by relatively young age (25 years old), male (52.5%), employed (86.7%), and unmarried students (68.9%). Other findings were the students who lived abroad tended to be a user of the UT-Online. It was thought to be related to the availability of better internet facilities in the country where they lived, such as Singapore, Taiwan, Hong Kong, or South Korea. In general, UT-Online user demographic characteristics in various aspects demonstrated conformity with the characteristics of internet users in Indonesia.

There was a tendency that the number of UT-Online users increased each year. For example, the students who enrolled in 2013 was 16.9% of all students of UTI, but 51.9% of UT-Online users were the students who enrolled in that year. This result was in line with some studies that internet penetration in Indonesia was gradually increasing by 24.23% in 2012 (APJJI, 2012). Thus, UT-Online users would increase in the future aligned with the increasing of internet users in Indonesia.

## 2. Knowledge of UT-Online among Students

Table 2 described the student knowledge of the various facilities in the UT-Online. The online tutorial was most known by the students (95.5%), followed by digital libraries and enrichment courses, respectively 63.5% and 45.0%. The dry - lab was also only known by 22.6% UT-Online users. The proportion of students who used the ITV-UT dropped dramatically to only 2.8%. This means that out of 11.6% students who know ITV-UT, only 2.8% had ever used the facility. Enrichment courses were known by 45.0% of UT-Online users and it was only ever used by 21.7% of the students.

Table 2  
Knowledge of UT-Online\*)

UT-Online Facilities	Aware	Use	Mastery	Need Training
Online Tutorial	863 (95.5%)	851 (94.1%)	851 (94.1%)	541 (59.8%)
Enrichment Courses	407 (45.0%)	196 (21.7%)	131 (14.5%)	270 (29.9%)
ITV-UT	105 (11.6%)	25 (2.8%)	15 (1.7%)	294 (32.5%)
Journal	255 (28.2%)	172 (19.0%)	84 (9.3%)	241 (26.7%)
Digital Library	574 (63.5%)	499 (55.2%)	396 (43.8%)	249 (27.5%)
Information for Teacher	369 (40.8%)	162 (17.9%)	105 (11.6%)	137 (15.2%)
Learning Object Material (LOM)	216 (23.9%)	120 (13.9%)	41 (4.5%)	353 (39.0%)
Dry Lab	206 (22.6%)	59 (6.5%)	24 (2.7%)	268 (29.6%)

\*) n = 904 and respondents may choose more than one option

The online tutorial was mastered by more than 50% students of UT-Online users. Other facilities were mastered by less than 50% of UT-Online users. ITV-UT was mastered only 1.7% users. Dry Lab facilities were also mastered by only 2.7% of UT-Online users. This percentage appeared to be related to the percentage of use, i.e. the higher the percentage of use of a facility by the student the higher the percentage of students who mastered these facilities.

UT-Online users expressed training needs as indicated in the last column of Table 2. The students wanted training for almost all of the facilities of UT-Online. There were 32.5% UT-Online users who needed training for ITV-UT. Learning Object Material (LOM) was most widely expected for training by 39% of UT-Online users.

Most of the students (59.8%) obtained skill in using UT-Online through their own learning without the help of others. This could be seen in Table 3. The regional offices of UTI had an important role in introducing the UT-Online to 57.4% of UT-Online users. Nevertheless, in assisting the using of UT-Online facilities, the role of the regional office of UTI was only 19.4%, there were more students assisted by their friends (30.2%).

Some of the recommendations were proposed by the students. A total of 12.9% of students proposed to UTI for more socializing facilities in UT-Online to students. In addition, 66.9% of students suggested that UTI should provide training in the use UT-Online. Furthermore, 59.3% of students suggested the availability of individual guidance on the use of UT-Online. In this case, the regional office of UTI -- as a leading unit in UTI who provide services to students -- could be empowered to implement these student recommendations.

Table 3  
Introducing and Helping the Students in using UT-Online

Source	Introduce UT-Online *)	Help in using UT-Online *)
Self	395 (43.7%)	541 (59.8%)
Friends	266 (29.4%)	273 (30.2%)
Tutor	221 (24.4%)	104 (11.5%)
Local office of UTI	519 (57.4%)	175 (19.4%)
Publishing Media	113 (12.5%)	-
Others	45 (5.0%)	23 (2.5%)

\*) n = 904 and respondents may choose more than one option

### 3. Access Behavior

The most frequently used facility respectively, were tutorials online (91.9%), enrichment courses (2.5%), ITV-UT (4.1%), and digital libraries (1.1%). Thus, online tutorial was still the most popular among UT-Online users. Behavior of student access, henceforth, would be analyzed based on the facilities that they use most frequently. The results of the analysis were presented in Table 4.

The frequency of accessing UT-Online facilities for most students was once every one to three days. This applied respectively to 80.0% of online tutorial users, 65.2% of enrichment course users, and 97.5% of ITV-UT users. Only 10.0% of digital library users used this facility once every one to three days, most of them (50%) used it more than once every seven days. Meanwhile, there was 30.4% of course enrichment users accessed more than once every seven days. Thus, approximately 80% of UT-Online users had an access frequency to the UT-Online facilities as much as once every one to three days.

Access period is the time used by students to open UT-Online in a single accessing. Access period to UT-Online varied depending on the facilities that students often use. For students of online tutorial users, most of them (54.9%) accessed for one to two hours and 35.8% of the students did more than two hours. For enrichment course users, there were 60.9% of them accessed it for one to two hours and 39.1% of them accessed it more than two hours. For users of digital libraries, 50.0% of students opened this facility between one to two hours and the rest (50.0%) had a longer access, i.e. they opened for more than two hours. ITV-UT facility shorter accessed by students, 89.2% of the students accessed it less than an hour. Thus, except for the ITV-UT, the facilities of UT-Online were accessed for more than one hour in every single access.

Access time for online tutorial users was at night (43.7%). On the contrary, the majority (97.3%) of ITV-UT users opened it in the morning. The morning time was also preferred by 56.5% and 50.0% of students when accessing enrichment courses and digital library respectively. Time used by students was allegedly related to the duration of the access. To access for long time period, the students choose in the evening, whereas for short access (just look around) they prefer in the morning.

**Table 4**  
**Access Behavior in Using UT-Online**

Facilities of UT-Online most frequently used Access Behavior	Online Tutorial	Enrichment Courses	ITV-UT	Digital Library
<b>1. Access Frequency:</b>				
▪ Once every 1 – 3 days	80.0%	65.2%	97.3%	10.0%
▪ Once every 4 – 6 days	13.8%	4.3%	0.0%	40.0%
▪ Once every more than 7 days	5.2%	30.4%	2.7%	50.0%
▪ Not used for a long time	0.7%	0.0%	0.0%	0.0%
<b>2. Access period:</b>				
▪ Less than 1 hour	9.3%	0.0%	89.2%	0.0%
▪ 1 – 2 hours	54.9%	60.9%	2.7%	50.0%
▪ More than 2 hours	35.8%	39.1%	8.1%	50.0%
<b>3. Access Time:</b>				
▪ Morning	19.1%	56.5%	97.3%	50.0%
▪ Noon	19.0%	4.3%	0.0%	0.0%
▪ Afternoon	8.9%	0.0%	2.7%	10.0%
▪ Night	43.7%	4.3%	0.0%	40.0%
▪ No specific time	9.3%	34.8%	0.0%	0.0%
<b>4. Place to access:</b>				
▪ Home	66.3%	39.1%	18.9%	100.0%
▪ Workplace	22.0%	30.4%	78.4%	0.0%
▪ Schools	5.8%	0.0%	2.7%	0.0%
▪ On the way	1.0%	0.0%	0.0%	0.0%
▪ No specific place	4.9%	30.5%	0.0%	0.0%
<b>5. Tools to use:</b>				
▪ PC	22.0%	0.0%	2.7%	0.0%
▪ Laptop/Notebook/Netbook	73.3%	73.9%	94.6%	100.0%
▪ Smart phones	3.1%	26.1%	2.7%	0.0%
▪ Tablet	0.6%	0.0%	0.0%	0.0%
▪ Others	1.9%	0.0%	0.0%	0.0%

For online tutorials and digital library, students tended to do it at home. There were 66.3% of the users of the online tutorials who opened the facilities at home and even much more for digital library users, i.e. 100.0% of them accessed it at their home. On the contrary, there were 78.4% of the users of ITV-UT who chosen their workplace to watch the ITV-UT. The students who used enrichment courses varied in where they accessed the facilities, 39.1% at home, 30.4% in the workplace, and 30.5% were no specific places for accessing it. The use of smart phone in accessing enrichment courses were the probably causes of places diversity for open the facilities.

Most students used a portable computer to access the UT-Online. The users of online tutorials, enrichment courses, ITV-UT, and digital library used portable computers, respectively of 73.3%, 73.9%, 94.6%, and 100.0% respectively. Tablet computer was only used by 0.6% of the online tutorial users.



#### 4. Attitude toward UT-Online

Student attitude toward UT-Online was based on the following indicators: (1) ease of use, (2) readability, (3) reliability of the information presented, (4) general benefit, (5) effects on learning results, (6) effects on interaction with fellow students, (7) effect on the students' interaction with lecturers/tutors, and (8) clarity of information. The student attitude toward UT-Online was presented in Table 5.

Overall average median score rating for facilities at UT-Online was 3.06 on the scale of 1 to 4. The median value of 3.00 or more at some indicators showed that UT-Online rated by students as a positive for the indicator. Thus, the students rated the UT-Online as positive in terms of ease of use, reliability of the information, benefit, and the effect on the results of the study. Aspects of the benefit received the highest ratings from students, namely of 3.49. This showed that UT-Online was perceived by students as a very beneficial learning support services. The students expressed specifically the benefits of UT-Online by rating 3.33 to the learning results of UT-Online. The students score on the benefit of UT-Online on learning results was the second largest after the assessment of the score of the general benefit indicator.

Table 5  
Student attitude toward UT-Online (n = 904)

Indicators	Percentage of score frequency				Median
	1	2	3	4	
Ease of use	0.7%	10.5%	71.6%	17.3%	3.06
Readability	0.8%	18.6%	63.2%	17.5%	2.97
Reliability of information	1.0%	7.3%	69.4%	22.3%	3.15
Benefits	1.0%	1.3%	47.0%	50.7%	3.49
Effects on learning results	1.0%	5.1%	56.7%	37.2%	3.33
Effects on interaction among students	12.1%	24.3%	42.3%	21.3%	2.77
Effects on interaction with tutors	20.2%	30.6%	36.5%	12.0%	2.43
Clarity of information	8.6%	15.3%	59.6%	16.5%	2.90
Average					3.06

There were several indicators which students gave the score less than 3.00. The students rated the UT-Online for such indicators as less positive. The readability and clarity of information were scored with 2.90 and 2.97 respectively. Improvements to these two aspects could be resolved by applying the design that included a trial to the students prior to launching the UT-Online facilities. In addition, indicators of influence on students' interaction with lecturers/tutors had the lowest score, i.e. 2.43. This indicated that the students perceived UT-Online had nothing to do with other learning activities, such as face-to-face tutorial.

## CONCLUSIONS AND RECOMMENDATION

1. The UTI's students who used UT-Online were younger and tended to be man, employed, and unmarried. The students who lived abroad had a better easiness in accessing UT-Online. In addition, there was a tendency that the number of UT-Online users was increasing each year. Therefore, ODL institutions should analyze of students' accessibility to the technological infrastructure, as Tait (2000) stated that "the domestics availability of ICT is changing very fast in many countries developing and developed, and an analysis of accessibility for particular cohort of learners has to be made frequently in order to maintain currency" (p. 5).
2. The online tutorials were the most familiar to the UT-Online users, while ITV-UT was less familiar. The users of the UT-Online required further training for using online tutorials. This finding was in line with Darmayanti, Dewiki, Asih, and Nurhayati (2004) who recommended the importance of promoting and training of the internet based learner support services. The research results had showed that the regional offices of UTI had a great role in introducing UT-Online to the students. Therefore, it is important for ODL institution to have an organizational structure for reaching the students scattered in the archipelago area like Indonesia.
3. Some facilities in UT-Online could be classified by access behavior based on number of users, frequency of access, duration of access, time of access, and place of access. For example, internet television of UTI (ITV-UT) was used by a few students, with high frequency, in short duration, in the morning, and in the office. On the contrary, online tutorials were used by many students, with low frequency, in longer access time, in the afternoon, and at home. This finding gave some point of view to the framework for the development of student support system proposed by Tait (2000), i.e. in fact the inter-related and interdependent among six elements in the framework could be represented in learners' access behavior to the technologies. Therefore, the developer of student support services in any ODL institutions should estimate learner' access behavior prior to developing the technological facilities.
4. The overall average median score rating for attitude toward UT-Online was positive in terms of ease of use, reliability of the information, benefit, and impact on learning outcomes. This finding was consistent with Herdian (2009) who studied about student's satisfaction to the online tutorial.

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## Course instructors taking responsibility against the background of MOOCs: From the perspective of responsibilities to students

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**Abstract:** Not only have MOOCs restructured the teaching environment of open education, they have also changed teachers working with them and responsibilities teachers shoulder. Course instructors taking responsibilities is conducive to helping students achieve learning results, in turn, teachers gain a more intense sense of responsibility. If course instructors are lacking in responsibility cognition, responsibility emotions, responsibility will and responsibility behavior, ineffective teaching will inevitably ensue. Course instructors should reinforce the care about educational objects and their ability to organize and manage online curricula, influencing students with the responsibility ideal and attitude of differentiated development; they should prompt a running mechanism of cultivating students' independent learning behavior; they should enhance the ability to take responsibility when communicating with students; they should strengthen responsibility emotions to exert the role of psychological expectation.

**Keywords:** MOOCs; Course Instructors; Lack of Responsibility; Taking Responsibility; Responsibility Restructuring

Coursera, Udacity, and edX have swept the globe, torn down the walls of universities, and changed the traditional forms of teaching, bringing a new educational eco-environment. The role of teachers has turned directions three times. The first is from teachers paying attention to the imparting of knowledge to focusing mainly on motivating and managing students during the learning process. According to Zheng, Y.J. & Lu, F.(2014), MOOCs have come in the right time to provide a loosely organized, unstructured, fast and efficient way of conveying knowledge that give learners the dominant position of learning, shifting the center from knowledge management to learning activity management; the second is from teachers' discourse hegemony of imposing meanings on students to communication between teachers and students on a free and equal basis. The on-line learning process is one that requires complete cooperation between teachers and students. The role of a teacher is no long perceived in the traditional sense. He is more like a consultant or coach. His relationship with students is free and equal. He conducts dialogues with students in a relaxed, harmonious and democratic learning environment, discussing issues and solving problems together; the third is from singular, unified evaluation of students by teachers to comprehensive, individualized evaluation. Sang,X.M. (2013), with his colleagues, points out that MOOCs created on the platform of online courses can be continuously improved to collect massive data about students, conduct statistical analysis in an intelligent way, and provide feedback in the form of a clear and individualized chart. Learning analysis techniques based on large data makes personalized learning evaluation possible, also the

teachers are well grounded in an all-round assessment of learners. New teaching practices and their impact on students' learning pose an urgent need for open education teachers to re-examine their role and take responsibilities as they should.

MOOCs have brought a new educational eco-environment, changing teachers working with them and responsibilities teachers shoulder. This article, based on logical reasoning and investigation, is a deliberate analysis of course instructors taking responsibilities in long-distance open education.

### *I. Course Instructors Taking Responsibilities*

A number of previous researches show that the drop-out rate of online learning is higher than traditional face-to-face learning. In Britain, the dropout rate of open universities is somewhere between 40-50%, while the drop-out rate of the traditional education is 20% for the same period of time; In US, the drop-out rate of long-distance education is as high as 70%, while the drop-out rate of the traditional education is 30-40%. Chinese contemporary long-distance education based on network is developing fast, but the drop-out issue has not been effectively solved (Cao, W.& Guan,Z.Y.,2005). Although the reasons are various(including contradiction between work and study, learning difficulties, economic pressure), the existing education practice testifies that the drop-out rate could be reduced if the long-distance education institutions(teachers) care more for the learners, pay attention to their learning trend, and conduct differentiated tutoring to enhance learners' confidence of completing the learning process (Li,Y.,Chen ,H.L.& Han,Y., 2010). The MOOCs teaching practice is full of wonderful lecturing from the course instructors, still the problem that many students discontinue their learning exists, thus it becomes especially important that course instructors provide students with effective learning and non-learning support.

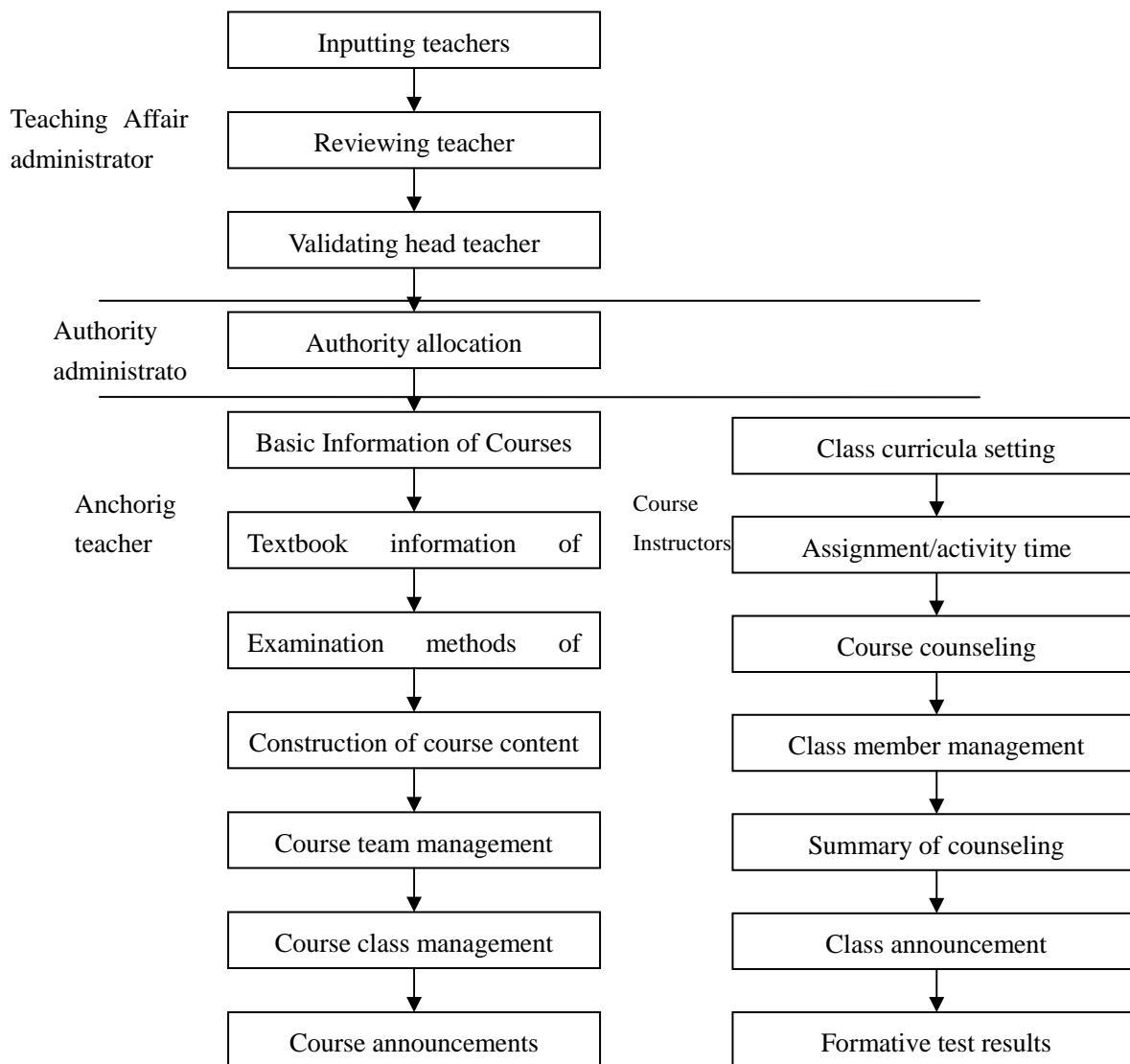
In long distance education, counseling teachers are necessary because they serve a special role in the overall curricula. Their role is to motivate students towards a positive direction rather than a negative direction, so as to promote students' learning (McConnell, D., 1994). David Sewart first mentioned the responsibilities of "counseling – consulting" teachers. He believes that the "counseling – consulting" teachers of British Open University are the faithful practitioners of implementing "sustained attention" to the students. The teaching mode of MOOCs also emphasizes the importance of support from teaching assistants (or course coordinator), who are in charge of managing , maintaining and publishing course-relevant information ( for example , course summary , content resources , weekly theme , event notifications , assignments and so on) , and guiding students through the whole process of the course. It is required that they are professional in course content, skilled at communication as well as capable of flexibly using social media tools (Gu ,X.Q., Hu ,Y.L. &Cai ,H.Y., 2013).

In open educational reform, the responsibilities of counseling teachers are unlike those of traditional network education. At present, Jiangsu Open University has introduced the concept of "course instructors" in the curricula reform, which means that teachers will take on more responsibility in the organization and management of the courses. Fischman,W. ,DiBara,J.A. &Cardner,H. (2006)suggests that the scope of teachers' responsibilities is divided according to the targeted objects into the

responsibility to themselves, the responsibility to others, the responsibility to the workplace / school, the responsibility to education, and responsibility to the society. Among them, the responsibility to students is ranked first. From the perspective of being learner-centered and responsible for the students, we believe that the course instructor taking responsibility refers to the effort they make when they establish management mechanisms in the process of curricula organization, implementation and evaluation and take actions to influence students, in order to achieve the desired objectives. The primary responsibility of course instructors is to make students progress in academic results, skills, emotions and so on in order to adapt to the society.

In MOOCs, we are more concerned about the wonderful teaching of the expert teachers, in practice, course instructors play a vital role in the MOOCs. The localization of online courses of Jiangsu Open University serves as an example. Based on the authority given by the platform, course instructors assume responsibilities as shown in Diagram 1.

Diagram 1: authorities of course instructors on the learning platform of Jiangsu Open University



Authority of course instructors determines the fundamental responsibilities that are due to them. Taking the minimum responsibility has become the basic premise and condition of course instructors.

The anchoring teacher is the director in charge of the course. He constructs the content of the course and manages the course team, working as the course instructor if necessary. The course director makes building plans of courses, teaching documents and integrated teaching programs; he conducts team management, class management and so on. A course has one anchoring teacher but can have multiple course instructors. The main responsibilities of the course instructor include class curricula setting, assignment and activity time adjustment, course counseling, class member management, assessing formative test results and others.

The online teaching is designed to be carried out in accordance with the teaching unit or module. The course director pre-designs curricula, and organizes teaching mainly by virtue of the tasks (learning activities) to be completed in a week as the core. He determines the weekly learning objectives or the objectives for every stage of the teaching, at the same time provides learning activities required to complete the objectives and completion time. Students' learning is to complete one specified activity after another. By completing activities elaborately designed by teachers, students will learn the relevant knowledge and skills.

Currently Open University is based on learning after course registration; course instructors receive teaching tasks before conducting a dynamic management of learners' requirements, including teaching support and non-teaching support to students.

Some investigative work needs to be done by course instructors one week before the course. Through teaching affair information, the course instructors understand the enrollment of the major and the course, students' learning registry sources, and students' educational background, then make learning plans, predict learning outcomes, and establish QQ groups for course counseling.

Within the first week of the course, course instructors can conduct icebreaking activities to guide and help students know each other in order to adapt to the online learning environment as soon as possible. Through QQ groups, platforms and phones, they can further learn about students' personal information, students' learning needs and so on. They introduce learning methods, offer learning advice to students, and sign learning agreements together.

From the second week to the third week, learning objectives and learning tasks of each unit should be clarified as well as the means to reach the end; they guide students to understand learning resources; they divide students into groups based on "complementation" principle, that is, to coordinate students according to their personality, academic background and ability, set up group discussions. It is appropriate to assign five to six students to a group.

The fourth week comes to the middle of study. After a previous stage of learning, there will be significant differences in students' academic progress. Teachers should carry out individual counseling by phone and QQ with particular students; understand the reasons of those who fall behind schedule, and help them find the right way to learn. They should adjust the learning progress, do mid-term learning summary and give learning evaluation to promote learning.

From the fifth to sixth week, they answer questions that arise in the learning process and guide students through their problematic behavior in the learning process, promote in-depth learning, and continue motivating them to further develop independent learning skills.

The seventh to eighth week, teachers counsel students about the content to be tested in the final exam and urge students to complete the project or the final inspection.

When the course is ending, they conduct learning surveys. On the basis of the survey, urge the students to achieve self-evaluation and self-improvement. Teachers summarize the learning, give their assessments and reflect on their teaching. In view of the entire process of curricula organization and implementation, the key to the responsibilities of course instructors is guidance. Organization and implementation of curricula is a process of teachers addressing students' learning problems. For example, teachers help students understand the content of the course; counsel them about the course; offer constructive feedback of the project; establish a study group and provide



advice.

The responsibility of course instructors also lies in “supervision”. Course instructors put a lot of energy and work in the communication and contact with students, thus the task of supervising them is heavy. For example, remind students to keep to the learning schedule, urge them to turn in formative test assignments, supervise online learning, participate in BBS discussions, do WIKI collaborative group discussions, inspect, evaluate and so on.

## *II. Analysis of Why Course Instructors Lack Responsibility Implementing Their Role*

### *1. Insufficient Responsibility Cognition*

The recognition of adapting to open education objects is insufficient. From the perspective of open education objects, learners differ in age, motivation and learning styles. They come from different regions and different social classes, showing a great discrepancy. Following the same old uniform requirements and management is not suitable to meet the practical needs. Because of students' sources, platform operation and other reasons, there are many uncertain factors in the course management. A large number of practical problems, such as interpersonal relations, the relationship between people and culture, the relationship between man and society, affect online learning and management.

### *2. Missing Responsibility Emotions*

Responsibility emotions arise from responsibility cognition. Teachers without responsibility emotions will not have a responsible attitude. First, the course instructor needs to face all kinds of relationships in the course team, for example, between the relationship with colleagues and the relationship with the executive administrators, conflicts may occur, though sometimes one role's requirement is possibly consistent with the other, then it requires that the course instructors aim at the objective of a greater system in curricula management, keep in mind the big picture, understand and respect each other and realize mutual coordination, so that a pleasant and satisfying experience will be generated in the teaching of the course.

Secondly, it is an interactive and mutually influencing process between teachers and students. Teachers' emotional attitude will affect, directly or indirectly, the development of students' psychology and behavior. Zhang, D.(2013) hold that teachers must be passionate about teaching to motivate and influence students, actively seeking a variety of ways to encourage, guide and push students into exploring their own learning. Teachers' neglect and untimely feedback will result in students' disappointment and then their loss of enthusiasm for learning.

### *3. Negative Responsibility Behavior*

Responsibility behavior is a manifestation of responsibility emotions while responsibility emotions are the foundation of responsibility behavior. There will be no positive responsibility behavior without a pleasant and satisfying teaching experience. Fully online education coupled with an ever-increasing number of learners means that the teacher should pay a lot more energy and time, so that the connotation of what teachers "should do" expands. If the limit is exceeded, teachers will fail to stand up to the situation, turn a blind eye to emergence of students' behavioral problems in the process of the course, and let problematic behaviors happen, which eventually leads to learners dropping out.

#### *4. Fragile Responsibility Will*

The will of responsibility can promote one man to beat irresponsible motives with a variety of responsible motives and to enact responsible motives. Course management is a practice that is not unchangeable, as learning deepens, management style and methods will vary. No problems and contradictions are constant in this process. There will always be new situations and new problems. The work of course counseling is minor and trivial. With a strong will they can deal with emergencies incessantly, and overcome one difficulty after another.

### *III. Restructuring of Course Instructors' Responsibilities in Educational Reform*

Christophe Will. (2009) thinks teachers who shoulder responsibilities have an enduring belief that they can change students' learning lives and achievements, because they know who they are (their identity), they know what they can do (knowledge, strategies, skills) and how to teach (belief and attitude expressed through their behavior in reality, and personal and professional values). Faced with doubt from the society about the quality of open education, teachers are placed at the center of accountability. Course instructors are committed to the society as well as the students. Improving the care towards the education objects and the ability to organize and manage online courses has become a priority.

#### *1. Influence Students with Responsibility Beliefs and Attitudes of Differentiated Development*

Most teachers know that there are differences between students, but in the actual implementation of teaching, they put requirements on students with a uniform standard. It is necessary to strengthen the responsibility belief of "differentiated development". Teachers should be good at analyzing the reasons behind the backwardness, which may include barriers in terms of motivation, knowledge, method, thought and will.

Course instructors should effectively adjust the difficulty level of the learning task, in order to adapt to different levels of students. In particular they should provide more learning support and assistance to students with learning difficulties, making full use of network tools for individualized instruction. For students who can keep up, mass text messages or e-mails are enough, but for students who learn passively, leaving individual messages on QQ is recommendable, and phone calls are the most direct and effective. In short, a variety of ways should be adopted to achieve the goal of "not pursuing that everyone is successful but pursuing that everyone is progressive".

#### *2. Cultivate Independent Learning Behavior in Students as Running Mechanism*

How should fully online learning be organized to ensure as much as possible that students actively watch the video, make use of resources for learning so as to promote initiative and exploring interests? For the learning method to shift from passive acceptance to self-learning, it is very important to develop independent learning behavior. David Sewart(1993) thinks long distance learning students are not born to be capable of independent learning. Students' self-learning ability, self-control, the ability to select information resources and to control the learning process are to be cultivated and developed gradually with the guidance and help from the universities and teachers. While course instructors are imparting knowledge content, they should focus on cultivating students' self-learning ability. Firstly, they should help students clarify learning objectives and analyze subjective and objective conditions to achieve learning objectives. Secondly, they should guide students to develop learning programs scientifically, like the term learning programs, course learning plans and so on to ensure

that independent learning is planned step-by-step. In addition, they should guide students to adjust learning time and schedule in a reasonable way. For example, they can guide students to put the course schedule on the desk to remind them of the task to be completed in the specified time.

### *3. Improve Ability to Take Responsibility in Interaction with Students*

When researching on instructor's responsibilities in the United States, Hall, K.M.(2008) found that teachers should possess such qualities as personal characteristics (easy to communicate, kind, and so on.), knowledge, experience, valid criticism, teaching techniques, and so on. These are factors that influence and determine whether teachers are consistent with their roles and responsibilities. Fully online teaching environment tests the quality of teachers and their abilities, especially the ability to interact with students. To create an interdependent communication environment that enables students to improve ability and develop personal character in the process of completing the learning task has become the direction of the course instructor's effort.

Course instructors should understand students' personality, interests and expertise in a comprehensive and in-depth way, continuously motivate them to learn, and frequently communicate with them, which requires that course instructors master comprehensive communication skills and response strategies. For example, writing course announcements, course summaries, and summaries of the panel discussion is inseparable from language skills. Communication with students on phone calls is inevitable, so teachers must also master telephone etiquette. Time to call and tone in which the call is made will directly affect the student's acceptance.

### *4. Strengthen Responsibility Emotions and Exert Psychological Expectations*

Strengthening teacher-student communication and understanding can effectively motivate students to learn. Rosenthal's experiments showed that teachers' expectation of students will affect the development of students. Teachers' professionalism, psychological quality, personality traits are internal conditions that affect teachers' expectations. "Endearing the teacher means believing in their doctrines," therefore, teachers creating their own conditions, improving relations with students and establishing good interpersonal atmosphere are the basis for teachers to implement the desired expectation strategy. When the condition of the teacher applying the effect of expectation is desirable, students are willing to accept, then the personal power through his mind is turned into his desire and put into action.

Chen,L. (2005)believe that as key facilitators and assistants of students, counseling teachers have been seen as a key factor to improve the support level of modern distance education quality. Responsibilities of course instructors in open education are enormous. For fully online teaching, the change of teaching and learning models has brought change in the functions and roles of teachers, which is bound to be uncomfortable in many ways. Thus, on the one hand, course instructors should strengthen self-learning and further study, and constantly improve their own quality; on the other hand, in addition to strictly holding teachers who can not fulfill their obligations accountable and implementing the policy of rewarding the good and punishing the bad, the universities should start to improve the interpersonal skills and psychological adjustment of course instructors from such various aspects as system, culture, material equipment, to create a relaxing cultural environment for teachers to conduct effective teaching.

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## **Field trial analysis of printed agricultural extension administration learning materials**

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### ***Abstract***

*Revisions of printed learning materials have been made by Agribusiness Study Program in Universitas Terbuka (UT) especially for those which have been printed for more than five years, including the materials for the Agricultural Extension Administration (LUHT4343) course. Evaluation of learning materials is needed to support the suitability of the materials and competences (cognitive, affective, and psychomotoric) that students need to become effective instructional materials to support their learning activities. The purposes of this study were to describe the readability level of the Agricultural Extension Administration course and to generate analysis based on pre and post test evaluation for Module #2 and Module #5 Agricultural Extension Administration course. The design of the study was a formative evaluation research with the aim for assessing the quality and improving the printed learning material. Data obtained from these formative evaluations were collected and interpreted to solve the difficulties faced by students in studying the printed learning material. The population of study was all students in the Agribusiness study program. Thirty student samples were taken from Serang Regional Office. Data were analyzed using quantitative and qualitative analyses. Conclusions obtained from the field trial analysis concerning the readability level for Module #2 and #5 for Agricultural Extension Administration were that the learning materials were easy to understand, the materials could lead students in self-learning; the exercises given were appropriate and related to the content, the summaries given could be understood, and there were not enough examples and the illustrations were not suitable enough. Based on the pre- and post-test analysis, it can be concluded that after the students studied the materials in Module #2, there was an increase in the ability of students for mastering of the contents of Module #2 and it was significantly different before and after reading the module. On the other hand, for Module #5, there was a decreased ability of students to master the contents of the learning material and it was significantly different before and after reading the modules. Some suggestions and improvements have been proposed by students to improve the quality of the learning material in Modules #2 and #5 for Agricultural Extension Administration. Some recommendations proposed as a result of this study are firstly, re-writing and revising the learning materials in Module #2 and #5 in order to accommodate the proposed improvements and suggestions from students, and secondly, conducting further research to create non-printed course materials to improve the quality and readability of the learning materials.*

**Keywords:**

*agricultural extension administration, field trial analysis, revision of printed learning materials*

## INTRODUCTION

The Agribusiness undergraduate study program is one of the study programs in the Biology Department in the Faculty of Mathematics and Natural Sciences. The Agribusiness Study Program was founded in order to accommodate the need to improve the competence of agriculture extension workers who specialized in the field of agriculture/animal husbandry/fishery extension.

Related to the institution policy, Agribusiness Study Program revises all printed learning materials which are more than five years old. From the existing courses, Agricultural Extension Administration (LUHT4343) is one of courses that are being revised.

Formative evaluation could be defined as the process of providing and utilizing information as a base for making decisions in improving the quality of an instructional product or program (Suparman, 2001). The results of the formative evaluation are used to improve the quality of printed learning materials during revision (Dick, Carey, & Carey, 2009).

Related to the dynamics within the agricultural extension system which has undergone a lot of changes since the agricultural, fishery, and agroforestry development revitalization agenda was established in 2005, it has become important to align the Agricultural Extension Administration printed learning materials to the rapid developments in the field of agricultural extension system.

The first phase in conducting the evaluation of printed material for the Agricultural Extension Administration course was done in two steps. The first step was conducting evaluation from two content experts and one instructional designer, followed by one-on-one evaluation by three students and conducting evaluation by small group of students (9 students) evaluation. Based on the each step of evaluation we revised Modules #2 dan Module #5, and a field trial evaluation was done in the second phase of study and will be explained in this article.

According to Farida *et al.* (2013), there are some revisions that should be done in the first phase of evaluation related to: 1) the instructional objective formulation, 2) the scope of the material, 3) the contents of the material should be aligned to the Agricultural, Fishery and Forestry Extension System (Law number 16, Year 2006), 4) the terminology used, 5) the description of illustrations such as tables and examples, and 6) exercises, summaries, and formative tests in the Learning Activity Section in the modules.

Therefore, a field trial evaluation is needed to evaluate the level of readability of the Agricultural Extension Administration learning material build from the first phase of study. There are two modules (Module #2 and #5) used in the study. The purpose of this article is: 1). to explain Module #2 and Module #5's level of readability, and 2) to generate analysis based on pre and post test evaluation for Module #2 and Module #5.

## METHODS

The design of the study was a formative evaluation research. Thirty student samples were taken from Serang Regional Office. Data were analyzed using quantitative and qualitative analyses. The students samples are randomly selected from Serang Regional Office. Data analysis in this study included quantitative and qualitative analyses. To compare student achievement before and after reading and studying the

modules was conducting by pre-test and the post-test followed-up with a significant difference test using the one sample t-test.

## RESULTS AND DISCUSSION

There are many studies have been done about learning material evaluation. According to Ekawarna's findings (2007), learning materials which are designed and developed based on good instructional principles could help students in the learning process and help the lecturers in reducing the time needed to present the material and increasing the consultation time for students. Pribadi *et al.* (2005) explained that the effort to maintain printed learning material quality is done through the involvement of academic staff as the course instructional designer and the technical staff in multi media production center. Continuous reviewing and revising is employed in developing printed learning materials.

Suhartono *et al.*'s study (2010) about one of the learning materials in the Elementary School Teacher Education Study Program found that the presentation of the material often overlapped and the material coverage was at times (54%) irrelevant to the topics discussed. Hermaini *et al.* (2010) found that one of the materials in the Early-Age Education which is meant to facilitate the students' learning process needs some corrections and revisions in substance, system, and comprehensiveness of learning material.

In the first phase of the study, the quality of the materials was evaluated by two content experts and one instructional design expert. Expert reviews are meant to obtain an outsider's view of the learning material content. The initial review was about the materials in the two modules, Module #2 and Module #5. Based on the review, it was concluded that the contents of both modules need to be revised, the materials were no longer valid because they were not in line with the current developments in the knowledge, which are now aligned to the Agricultural, Fishery and Forestry Extension System (Law Number 16, 2006).

The results of the first phase of study for Agricultural Extension Administration learning material are : 1) improving the the instructional objective formulation, 2) improving the scope of the materials based on the new instructional objective formulations, 3) improving the contents of the materials according to Law number 16, 2006, 4) updating the terminology used in the modules, 5) improving the illustrations such as tables and examples, and 6) improving exercises, summaries, and formative tests (Farida, *et al.*, 2013).

After conducting review by content experts and instructional design experts, the revision has been made to Module #2 and Module #5. After revisions completed, the learning materials were re-evaluated by a small group of students consist of nine students. The result of the first phase of study was two revised modules that are ready for field trial analysis.

The results and discussion in the second phase of the study from field trial analysis explained the readability level of Agricultural Extension Administration learning material for Module #2 and Modul #5. The results of the field trial included the students' explanation of the following points: 1) whether the module materials were easy to understand; 2) whether the material in the modules were able to encouraged independent learning; 3) whether the examples in the module clarify the materials; 4) whether the illustrations in the module were relevant to the materials; 5) whether the

summaries provided in the module could be understood, and 6) whether the formative test provided in modules could be understood.

### The Materials in the Module were Easy to Understand

The responses from the respondents to the question of whether the module materials were easy to understand were summarized in Table 1.

Table 1. The Distribution of Respondents

Variable	Module	Category	Number	Percentage
The module materials were easy to understand	Module #2	Yes	28	93.4
		No	0	0
		Less than satisfactory	1	3.3
		Satisfactory	1	3.3
		<b>Total</b>	<b>30</b>	<b>100</b>
	Module #5	Yes	27	90
		No	3	10
		<b>Total</b>	<b>30</b>	<b>100</b>

Based on the findings in Table 1, it can be seen that 93.4% respondents for Module #2 and 90% for Module #5, said that the materials in the modules are easy to understand. Students who said the opposite, had the following arguments:

*“The materials were difficult to understand because there were too many explanations, they do not go straight to the definitions or meaning”.*

### The Module Materials Encouraged Independent Learning

The respondents’ answers to the question of whether the materials in the modules were able to encourage independent learning were summarized in Table 2.

Table 2. The Distribution of the Respondents

Variable	Module	Category	Number	Percentage
The materials in the module encouraged independent learning	Module #2	Yes	29	96.7
		No	1	3.3
		<b>Total</b>	<b>30</b>	<b>100</b>
	Module #5	Yes	27	90
		No	3	10
		<b>Total</b>	<b>30</b>	<b>100</b>

Based on the finding in Table 2, it can be seen that 96.7% respondents for Module #2 and 90% for Module #5, said that the materials in the module could encourage independent learning. As for those who said that group study is better for studying the modules had the following arguments:



*“Everybody has their own business; sometimes we don’t have time to open the modules. It is better to study in groups, because by studying together, we can open the modules and study them”,*

*”...don’t understand the terminology, there should be a glossary”.*

### **The Examples Clarify the Materials**

The respondents’ answers to the question of whether the examples in the module could clarify the materials were summarized in Table 3.

Table 3. The Distribution of the Respondents

<b>Variable</b>	<b>Module</b>	<b>Category</b>	<b>Number</b>	<b>Percentage</b>
The examples clarified the materials	Module #2	Yes	23	76.7
		No	1	3.3
		Less than satisfactory	5	16.7
		Satisfactory	1	3.3
	<b>Total</b>		<b>30</b>	<b>100</b>
	Module #5	Yes	27	90
		No	3	10
	<b>Total</b>		<b>30</b>	<b>100</b>

Based on the finding in Table 3, it can be seen that 76.7% respondents for Module #2 and 90% for Module #5, said that the examples given could clarify the materials. There were 16.7% respondents who said that Module #2 was less than satisfactory with the following reasons:

*“Too many examples, it would be better to give fewer but more easily understood examples”.*

There were 10% respondents who claimed that Module #5 was not easy to understand with the following reasons:

*“Please include an example for a frame for planning a program comprehensively.”*

### **The Relevance between Illustrations and the Materials**

The respondents’ answers to the question of whether the illustrations in the module were relevant to the materials were summarized in Table 4.

Table 4. The Distribution of the Respondents

Variable	Module	Category	Number	Percentage
The illustration contents were relevant to the materials	Module #2	Yes	19	63.3
		No	7	23.3
		Less than satisfactory	2	6.7
		Satisfactory	2	6.7
		<b>Total</b>	<b>30</b>	<b>100</b>
	Module #5	Yes	26	86.7
		No	1	3.3
		Less than satisfactory	1	3.3
		No answer	2	6.7
		<b>Total</b>	<b>30</b>	<b>100</b>

Based on the finding in Table 4, it can be seen that 63.3% respondent for Module #2 and 86.7% for Module #5, said that the illustration contents were relevant to the materials. There were 23.3% respondents who said that the illustration contents for Module #2 were not relevant, giving the following reasons:

*“Figure 2.22 is not clear and difficult to understand; the illustration is not the same as the reality found in existing farmer groups”.*

There respondent who stated that the illustrations in the module were not relevant with the following reasons:

*“More illustrations need to be added; it is difficult to practice in the field (especially for those who do not work as extension workers)”.*

### The Exercises Given are Comprehensible

The respondents’ answers to the question of whether the exercises provided in the module could be understood were summarized in Table 5.

Table 5. The Distribution of the Respondents

Variable	Module	Category	Number	Percentage
The exercise contents provided could be understood	Module #2	Yes	25	83.3
		No	2	6.7
		Less than satisfactory	1	3.3
		No answer	2	6.7
		<b>Total</b>	<b>30</b>	<b>100</b>
	Module #5	Yes	25	83.3
		Less than satisfactory	4	13.3
		No answer	1	3.3
		<b>Total</b>	<b>30</b>	<b>100</b>

Based on the finding in Table 5, it can be seen that 83.3% respondents for Module #2 and for Module #5, said that the exercises provided were in line with the materials. There were 6.7% respondents who said that the exercises in Module #2 were not satisfactory and 3.3% respondent said they were not relevant with the following reasons:

*“the illustration was not clear and difficult to understand; it was different from the condition of existing farmer group”.*

Only 3.3% respondent said that Module #5 could not be understood, and 13.3% respondents said that it was not really comprehensible with the following reasons:

*“it was difficult to understand how to determine the best time to collect data and to authorize the extension program”.*

*“If we are used to the real world or we are exposed to mass media, we could understand it, but in practice it is difficult to implement because some people are open to new ideas and others are not.”*

### **The Summaries are Easy to Understand**

The respondents’ answers to the question of whether the summaries provided in the module could be understood were summarized in Table 6.

Table 6. The Distribution of the Respondents

<b>Variable</b>	<b>Module</b>	<b>Category</b>	<b>Number</b>	<b>Percentage</b>
The summaries provided could be understood	Module #2	Yes	27	90
		No	1	3.3
		Less than satisfactory	1	3.3
		No answer	1	3.3
	<b>Total</b>	<b>30</b>	<b>100</b>	
	Module #5	Yes	26	86.7
		Less than satisfactory	1	3.3
		Satisfactory	1	3.3
		No answer	2	6.7
	<b>Total</b>	<b>30</b>	<b>100</b>	

Based on the finding in Table 6, it could be seen that 90% respondents for Module #2 and 86.7% for Module #5, said that the summaries provided could be understood. There was only 3.3% respondent who said that it was less than satisfactory and respondent who said it could not be understood with the following reasons:

*“The summaries did not have enough details from the sub-chapters”.*

## The Formative Tests were Easy to Understand

The respondents' answers to the question of whether the formative tests provided in the module could be understood were summarized in Table 7.

Table 7. The Distribution of the Respondents

Variable	Module	Category	Number	Percentage
The formative tests could be easily understood	Module #2	Yes	26	86.7
		No	1	3.3
		Satisfactory	2	6.7
		No answer	1	3.3
	<b>Total</b>	<b>30</b>	<b>100</b>	
	Module #5	Yes	26	86.6
		No	2	6.7
		No answer	2	6.7
		<b>Total</b>	<b>30</b>	<b>100</b>

Based on the finding in Table 7, it can be seen that 86.7% respondents for both Module #2 and Module #5, said that the summaries provided are easy to understand. Only 3.3% respondent said that the formative tests given in Module #2 were not easy to understand and 6.6% respondents said they were quite easy to understand with the following reasons:

*“The formative tests were easy to understand but the explanations were too extensive”.*

Only 6.7% respondents said that the formative tests in Module #5 were not easy to understand and another 6.7% respondents abstained. The statements given by the students were, among others:

*“The questions were difficult to solve independently.”*

## The Results of the Pre-test and Post-test Analyses

The results of the students' pre-test and post-test before and after studying Module #2 are summarized in Table 8 and Table 9.

Table 8. The Statistical Test Results for the Pre-test and Post-test for Module #2

Type of test	N	Average	Standard deviation	Average Standard Error
<i>Pre-test</i>	28	4.68	1.467	0.277
<i>Post-test</i>	28	5.61	2.514	0.475

From the results of the pre-test and post-test for Module #2, there was an increase in the students' ability in answering the questions given. The average score for the pre-test was 4.68, after the module was given to the students to study for 1 (one) week, the average score for the post-test increased to 5.61. Therefore, Module #2 which was handed to the students to study for one week could increase the students' understanding of the materials presented.

Table 9. The Results of the Significant Difference Test (t-test) for Module #2

	<b>t</b>	<b>df</b>	<b>Sig. (2-tailed)*</b>	<b>Mean Difference</b>	<b>Lower</b>	<b>Upper</b>
<i>Pre-test</i>	16.876	27	0.000	4.679	4.11	5.25
<i>Post-test</i>	11.801	27	0.000	5.607	4.63	6.58

\*  $\alpha = 0.05$

After the students studied the materials in Module #2, there was an increase in the comprehension of the materials in Module #2 and they were significantly different.

Statistical tests were also done on the pre-test and post test results for the materials in Module #5. The results of the statistical tests on the students' pre-test and post-test for Module #5 are summarized in Table 10, and was followed-up with a significant difference test using the one sample t-test (Table 11).

Table 10. The Results of the Statistical Tests for Module #5

<b>Type of test</b>	<b>N</b>	<b>Average</b>	<b>Standard deviation</b>	<b>Average Standard Error</b>
<i>Pre-test</i>	28	6.21	1.750	0.331
<i>Post-test</i>	28	6.18	2.539	0.480

Based on higher standard deviation on post test, means that the students' scores were more varied; some high and some low. Handing over Module #5 to the students for studying for one week increased the scores for some students and decreased them for others. The decrease in the post-test scores means that the module given to the students did not provide much help for the students in increasing their understanding of the materials. This could be because many of the students did not read or study the module well, reflected in their less than satisfactory post-test results. Therefore, Module #5 needs revisions and improvements so that it would be easier for the students to study and to understand.

Table 11. The significant difference test (t-test) for Module #5

	<b>t</b>	<b>df</b>	<b>Sig. (2-tailed)*</b>	<b>Mean Difference</b>	<b>Lower</b>	<b>Upper</b>
<i>Pre-test</i>	18.787	27	0.000	6.214	5.54	6.89
<i>Post-test</i>	12.875	27	0.000	6.179	5.19	7.16

\*  $\alpha = 0.05$

Based on the finding in Table 11, it can be concluded that after the students studied the materials in Module #5, there was a slight decrease in their understanding of

the materials in Module #5 and there was a significant difference. The decrease in the post-test scores means that the module given to the students did not provide much help for the students in increasing their understanding of the materials. This could be because many of the students did not read or study the module well, reflected in their less than satisfactory post-test results. These findings suggested that Module #5 need revisions and improvement in order to make it easier for the students to study and to understand.

### **Suggestions and Corrections from Students**

In general, the suggestions and corrections for Module #2 and Module #5 were : 1) the modules should be designed to be more attractive, 2) more illustrations/tables need to be added to make the materials more comprehensible, 3) there needs to be more related materials such as the most current information, 4) the examples given should be simplified, 5) the explanations made briefer and go straight to the discussion to make it more effective and efficient, 6) the answer key should include feedback, and 7) need needs to be a glossary for difficult/foreign terms.

### **Conclusions**

The conclusions obtained from the field trial analysis concerning the readability level for Module #2 and #5 for Agricultural Extension Administration are that the learning materials are easy to understand, the materials could lead the students in self-learning; the exercises given are appropriate and related to the content, the summaries given could be understood, and there aren't enough examples and the illustrations are not suitable enough. Based on the pre- and post-test analysis, it can be concluded that after students studied the materials in Module #2, there was an increased ability of students for mastering of the contents of Module #2 and it significantly different before and after reading the module. On the other hand, for Module #5, there was a decreased ability of students to master the content of the learning material and it was significantly different before and after reading the module. Some suggestions and improvements have been proposed by students to improve the quality of the learning material of Modules #2 and #5 for Agricultural Extension Administration.

Some recommendations were proposed as a result of this study. Firstly, re-writing and revising the learning materials of Module #2 and #5 in order to accommodate the proposed improvements and suggestions from students, and secondly, conducting further research to create non-printed course materials to improve the quality and readability of the learning materials.

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# The design of microlectures based on a mobile learning environment in an electrical commerce course

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**Abstract:** Along with the rapid development of modern communication technology and wireless network technology, the users with mobile terminals connected to the network are more and more. Mobile terminal devices such as 3G smartphone, PAD, have the characteristics of miniaturization and portable, which have gradually made mobile learning become one of the mainstream way of learning. But mobile learning is influenced by limitations of mobile terminals, including small storage capacity, limited computing ability, and low resolution, etc. So for the design of microlecture in a mobile learning environment, we should take these limitations into consideration, designing learning activities and establishing suitable platform for microlecture learning. First, in this paper, we analyze the four parts of Mobile learning environment, including mobile learning network supporting environment, mobile learning platform, mobile learning resources and mobile learning terminal devices. And then microlecture on the concept, characteristics and functions are expounded. In open education platform, microlecture can be understood as a series of brief but complete teaching activities around certain knowledge modules completed by teachers and serviced for students, in which video as the main carrier. Finally, this paper takes as an example electronic commerce course in Jiangsu Open University, to explore design concept, design thinking and design methods of microlecture in mobile learning. The course should be emphasized on the application and practice, so microlecture design scheme are proposed in three major areas: microlecture module division, teaching mode selection and time allocation, which also provide the case reference for other open course construction, and new idea for the further development of mobile learning.

**Keywords:** mobile learning, microlecture, open education, electronic commerce course.

## 1. The Composition of Mobile Learning Environment

Mobile learning is refers to that people can learn anytime and anywhere with the use of mobile technology, or combined with other information and communication technology (ICT) (UNESCO, 2013, p. 6). Mobile learning environment is composed of four parts, which are mobile learning network supporting environment, mobile learning platform, mobile learning resources and mobile learning terminal devices(Huang, J. J. & Zhang, L. , 2013).

Network supporting environment is the network access layer, which is the basic layer in these four parts, is mainly to solve the technical problems of mobile Internet access. The most commonly used wireless network access technology including infrared and Bluetooth access, can make the terminal device connected directly, share resources



of learning. Accessing to the network through WAP technology, a huge amount of information and all kinds of business from the Internet can be introduced to wireless terminals such as mobile phones, PALM, etc. No matter where you are, when you need information, you can open your WAP mobile phone and enjoy such a wealth of information and resources online. In addition, you can also connect wireless LAN through the wireless cards or wireless AP with no professional computer, and the network coverage will be greater. This access is very suitable for mobile learning with in particular scope such as classroom, family, etc.

Mobile learning resources include all resources for education and learning, such as text data, video tutorials and microlecture, etc. What Learners need to get by is the learning resources designed and offered by us. The design and development of mobile learning resources in microlecture is the research focus in this paper.

Mobile learning platform (system) is the management system which is installed on the server side under the wireless network environment. It installs the related software which supports mobile learning and provides convenient mobile learning support platform for learners and instructors.

Mobile learning terminal equipment includes mobile phones、PAD、tablet computer and other learning supporting equipment used by people going about their daily lives. The meaning of the mobile is reflected here, that we can acquire learning resources through the compact device in our hands anytime and anywhere.

In conclusion, mobile learning is a new kind of study way which has broken the traditional limit of space and time, built a more open and flexible learning environment, and developed a learning style called 5A(Anything - Anytime - Anybody - Anywhere – Anyone) .

## II . Overview of Microlecture

### A. What is a Microlecture

The term microlecture refers to the actual instructional content with the use of a constructivist approach, which is formatted for online and mobile learning, rather than to the microcontent for microlearning (Shieh, D, 2009). Professor Yi-chun Zhang (2013) thinks that microlecture is a brief and complete teaching activity of adopting the method of informatization instructional design, it is showed in the form of streaming media focusing on certain knowledge or teaching link, and makes learners to learn spontaneously and get the best effect finally. Therefore, for the teacher, the key is to make microlecture from the perspective of students rather than from the perspective of teachers, it should reflect the teaching ideas that students come first.

So, microlecture also can be defined like this: in accordance with the requirements of new curriculum standard and teaching practice, which uses video as the main carrier, records the whole wonderful process of teaching and learning activities around certain knowledge(i.e., key points, difficult points) or teaching link, both inside and outside the

classroom.

## B. Features of Microlecture

As a new way of teaching, many teachers in colleges and universities have tried to use microlecture to decompose teaching knowledge and combine it with traditional teaching methods to improve teaching effect. In this paper, based on the study of microlecture, we give the following summary about features of microlecture and provide the reference for the communication.

First, microlecture is characterized by its word of “micro”, which can be embodied from the teaching content, teaching time and teaching style. Microlecture teaching time is controlled generally in 15 minutes, 8 to 10 minutes of short video is best. Traditional class teaching time is 40-45 minutes. We have to admit that 45 minutes of classroom teaching content is richer than microlecture. However, microlecture in teaching time is much shorter. microlecture is focused on short and concision, although it is short, the teaching content is still intact in terms of a certain knowledge point. In addition, microlecture is showed generally through the form of multimedia terminal, and teaching need not in a real classroom, which also reflects the characteristic of the “micro”.

Second, mircolecture has the characteristics of the scene mutually teaching. The selected teaching contents are required to have outstanding theme, clear directivity and relatively integrity. Using teaching video as main carrier, these contents are integrated with teaching design (teaching plan and learning plan), multimedia materials and courseware used in teaching, teaching reflection of teacher after class, students' feedback and subject expert review, which constitute a thematic unit resource bundle of various types and compact structure, and build a real micro-teaching environment. Microlecture resource has the characteristics of video teaching cases, so teachers can select suitable situation to record according to the teaching contents during the design of microlecture. For example, medical microlecture making can be chosen in hospital and logistics microlecture making in logistics company, and so on.

Third, microlecture has outstanding theme and content specific. Research questions come from the specific problems in the education teaching practice, such as thinking about life, teaching reflection, breaking through difficulties, highlighting information, learning strategies, teaching methods, educational idea and other specific and real questions that can be solved by yourself or with others.

Finally, microlecture is interactive. The study of microlecture is not limited by time and space. Learners can study with the terminal equipment such as mobile phone anytime and anywhere. Then, the feedback can be timely provided after learning by learners. For example, learners can evaluate or suggest whether the content of microlecture is appropriately designed and can be understood. So, good interaction is beneficial to teacher's teaching reform and conducive to student learning.

## C. Function of Microlecture

First of all, microlecture can fully show teachers' style and encourage them to improve teaching level. Through making microlecture and attending microlecture

competition, teachers show their teaching achievements, which also have a very good publicity effect. Teachers can only teach a class or a group of students in the traditional classroom teaching, students at other schools are unable to access teaching resources at the same time. However, in this form of microlecture, excellent teachers and their works can be spread timely and widely. The role of netizens is immeasurable, Microlecture is spread and learners give feedback by using network. The interaction is beneficial for teachers to find their advantages and disadvantages, which also help them think and solve problems for improving the teaching level and optimizing the teaching effect.

Second, network spread quickly, microlecture can broaden the scope of knowledge dissemination. Open universities rely on network that is not only the national network but also internationally compatible. In the form of microlecture, due to the resource capacity is not big, transmission is more convenient. A good microlecture learning resources can be passed to more learners with user license, learners can also obtain broader and more advanced resources to broaden their knowledge and enhance learning effect over the network.

Finally, microlecture provides a new learning experience that is full of more interesting of learning. Teachers can use various forms in the design of microlecture, as long as they can convey knowledge clearly, such as case lecture, interactive discussion and microteaching, etc. That is what is called let a hundred flowers blossom and a hundred schools of thought contend. Explainer can intersperse knowledge with popular witty language, which let learners to complete the learning process in a relaxed and happy atmosphere, learning effect is also better. It takes some upfront time and efforts to design microlecture, if teachers want to make breakthrough, they should improve and evaluate continuously to speed up their pace of ascension in the process of design and implementation.

### III. Microlecture design of Electronic Commerce Course in the Mobile Learning

Many colleges and universities have incorporated microlecture into formal teaching procedures, and some microlecture sites have also been made such as Khan Academy, which is a nonprofit education organizations, provides a high quality education for free to people all over the world through online library (EDUCAUSE. 2012). In open education platform, microlecture can be understood as a series of brief but complete teaching activities around certain knowledge modules completed by teachers and serviced for students, in which video as the main carrier. In this paper, we take electronic commerce course in Jiangsu Open University as an example to introduce microlecture design in the mobile learning from following five aspects.

#### A. Features of this Course

Electronic commerce course is geared to the needs of students who take business management as their major, and is also took as an elective course by students who take accounting, trade, logistics and computer as their major. This course has a strong practicality, so students should study based on the e-business practice in process of learning. Combining with network features, students should understand the

characteristic of e-business and its differences with traditional business activities, improve business skills and ability to find business opportunities by making use of network advantages. So it is important to combine theory with reality for microlecture design under the mobile learning.

### B. Division of Knowledge Module

Microlecture module division can make knowledge representation more integrity. Based on the characteristic of microlecture, the division of microlecture knowledge module differs from traditional teaching knowledge module: Don't teach everything but show emphasis. In the process of design, we only need to highlight key point and difficulty, not to blend all knowledge into it. So, the microlecture designed for electronic commerce course is shown in table 1. From the table, it can be seen that only the important chapter should be appeared by microlecture rather than every chapter.

Table 1: The division of microlecture knowledge module

Chapter Arrangement	Microlecture Modules
The connotation and classification of electronic commerce	History, summary and classification of electronic commerce
The skeleton structure and transactional model of electronic commerce	1. Transactional model of B2B 2. Transactional model of B2C 3. Transactional model of C2C
The basis of electronic commerce	null
Internet marketing	Network marketing and online advertising
Electronic banking and electronic payment	1. electronic banking 2. electronic payment
Electronic commerce logistics	1. First Party Logistics 2. Second Party Logistics 3. Third Party Logistics
Mobile electronic commerce	M-Commerce
Safety management and legal order of electronic commerce	null

### C. Design of Learning Contents

The choices of learning Contents meet the requirements of syllabus, which is agreed with integrated teaching implementation plan and teaching goals. After determined microlecture learning contents, We adopt the following principles in the design of the contents:

**Modularity:** Dividing knowledge modules according to the content of the chapter. It is best for each module to contain a relatively complete knowledge point, as shown in table 1. Learners can grasp this knowledge point well in 5 to 10 minutes of microlecture.

**Integrity:** Each knowledge point has not necessarily associated with each other,

generally speaking, it must belong to a specific chapter, and it is a unified whole.

**Interestingness:** The interestingness of microlecture is not only embodied in its form but also in the teaching performance of instructors, which would arouse the enthusiasm of the learners.

**Situationality:** Providing learners with simulated situation that can help learners feel immersive to master knowledge better.

**Logic:** Teaching should be step by step, and follow the learner's cognitive laws.

In the performance forms of micro courseware, more pictures and animation instead of words have also been adopted, which can reflect characteristic of microlecture and improve learning effect better.

#### D. Model of instructional design

Several of instructional design can be used in microlecture. Options of instructional design depend on different disciplines. For example, the experimental mode can be used in science courses, the situational model can be used in medicine courses, and game mode can be used in language courses and so on. According to the characteristic and teaching condition of electronic commerce course, we have chosen instructional design from the following several teaching models: Case study; Online simulation; Experimental design; Storytelling.

#### E. Microlecture Design scheme of Electronic Commerce Course

Based on the above analysis, microlecture design scheme of electronic commerce Course is shown in table 2 below:

Table 2: microlecture design scheme of electronic commerce Course

Number	Microlecture Module Division	Teaching Mode Selection	Time Allocation
M1	History, summary and classification of electronic commerce	Storytelling	5 minutes
M2	Transactional model of B2B	Online simulation	10 minutes
M3	Transactional model of B2C	Online simulation	10 minutes
M4	Transactional model of C2C	Experimental design	10 minutes
M5	Network marketing and Online advertising	Case study (explained by corporate personnel)	8 minutes
M6	1. Electronic banking 2. Electronic payment	Online simulation	8 minutes
M7	1. First Party Logistics 2. Second Party Logistics 3. Third Party Logistics	Case study ( Case comparison teaching )	10-15 minutes
M8	M-Commerce	Online simulation	8 minutes

In knowledge module M1, We adopt the plan of storytelling to design microlecture. This story can summarize the whole course of e-commerce development, which involves people and events, both complete and vivid. We use online simulation and experimental design to finish the design of microlecture when introducing the knowledge module of M2, M3 and M4. Simulation experiment is implemented with the aid of specific e-commerce trading platform, which supporting the whole process of e-commerce transactions related knowledge, such as user registration, electronic bank, account binding, etc. Microlectures' making of knowledge module M5 mainly relies on the real enterprise and the enterprise staff analysis and explain cases, which is more vivid and meaningful. We adopt the plan of online simulation to design microlecture for knowledge module M6. Case comparison method can be used in the design of microlecture when introducing knowledge module M7. According to three kinds of logistics mode, listing the different cases, and making a comparative analysis help us more in-depth understanding. Instructors can use simulation demonstration directly through mobile terminal to introduce knowledge module M8. The popular software, For example, taking a taxi or group-buying meals, which can be used at the scene and give learners analyses by instructor. The way of situated teaching is practical and vivid, which is suitable for the design of microlecture. In these real, concrete and typical cases of teaching and learning situations, students can be easy to implement higher-order thinking ability of learning, such as "tacit knowledge" , and teachers can achieve the imitation, migration and promotion of teaching concepts, teaching skills and teaching style. In the end, teaching level and professional development of teachers can be rapidly promoted, academic level of students can be also improved.

Through the analyses above, it can be seen that the design of electronic commerce course reflects the principle of servicing knowledge content: curriculum knowledge content determines form, which is embodied in each module in different ways, and the form services for curriculum knowledge content.

#### IV. Conclusion

Nowadays mobile internet is becoming increasingly popular and open education is more and more dependent on the mobile network platform. Mobile learning can attract more learners and users, which is a more attractive and dynamic approach to learning. In this paper, by focusing on microlecture design of electronic commerce course, we explore design concept, design idea and design method of micro courseware in mobile learning environment, which should play a good role in promoting the construction of open and distance education and provide some demonstrations and references for other course construction. Microlecture design of electronic commerce course based on mobile learning environment has been putted into effect on the platform of Jiangsu Open University, and specific learning results also need further verification from learners' feedback.

## V. Acknowledgement

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# **Online curriculum mapping as a learning analytic tool for collaborative distributed programme and curriculum development: Implications for open and distance learning**

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## **Abstract**

The paper evaluates the acceptability of the open source online curriculum mapping system TODCM in distributed program and curriculum development. Using survey and participant-observation it evaluates the software using the criteria of strengths and weaknesses of the curriculum mapping function of the software; its support for collaboration and openness; and its usability and usefulness. The study looks at online curriculum mapping as a form of learning analytics for collecting instructional/curricular design data.

The study found positive perception towards the CMS in terms of these criteria among geographically distributed graduate students and faculty of a distance education institution. However the lack of integration of the CMS with a learning platform such as a learning management system is a critical weakness of the software as a learning analytic tool for helping teachers and support staff develop interventions that support teaching and learning.

*Keywords: curriculum mapping, distributed curriculum development, learning analytics for ODEL planning*

## **Introduction**

The purpose of this study is to determine the acceptability of the open source software TODCM, an online curriculum mapping system (CMS), in program and curriculum planning among participants who are geographically distributed.

It aims to find out if the facilities of the software provide the needed tools to align, search for overlaps and repetitions in the curriculum, and support program and curriculum planning in general. In addition it aims to find out if and how the software supports online collaboration among participants when planning a curriculum.

The findings are intended to be used as a guide to customising or supporting the existing curriculum mapping system with other learning analytic tools to develop the most effective way to use the tools in collaborative curriculum and program planning.

Curriculum planning today is usually done face-to-face wherein participants are sequestered in a workshop for days. This practice is costly for the organisers and the participants. And it limits the number of participants that results in loss of valuable input from teachers/academics. The study is looking at how using online tools as an alternative model to curriculum planning in a distance education institution can address these problems.



The paper views curriculum mapping as a learning analytic tool that collects data on curriculum design, that in turn will be useful in making sense of related data collected in the implementation of the curriculum in learning platforms such as a learning management system (LMS) (Ferguson, 2014). A problem seen about learning analytic tools that rely on access logs like the traffic light MOODLE plugin Engagement Analytics (Olley, Holman, & Dawson, 2014) that alerts teachers about students at-risk of dropping out is that it can only say that students failed to access an activity or resource. But it cannot tell how that activity or resource was used by the teacher, what outcomes were expected and how the teacher can intervene by changing the activity or resource to help the student. This is the kind of intervention that learning analytics is supposed to support (Powell & MacNeill, 2012, p. 4). It is hoped that by combining curriculum mapping and learning analytics tools for learning platforms we will be able to acquire prospective and retrospective data on the instructional design process from design to evaluation.

However, TODCM is standalone software that is not integrated with a learning platform. Therefore the paper confines itself to the evaluation of strengths and weaknesses of curriculum mapping functions; support for collaboration and openness; and usability and usefulness of the online CMS. Integration with a learning management system will not be a criterion for evaluating the software but we will return to this issue in the concluding discussion of the paper.

The study aims to answer the following questions:

1. What is the perception of the geographically distributed educators regarding the strengths and weaknesses of the TODCM curriculum mapping software in terms of their curriculum mapping needs?
2. What value do geographically distributed educators find in the online CMS in terms of its affordances for distributed collaboration and openness in curriculum design?
3. What is the perception of geographically distributed educators regarding the acceptability of the curriculum mapping system in terms of usability and usefulness?

### **Definition of Terms**

1. Curriculum Mapping - "a calendar based planning process in which a teacher records the content and skills that are actually taught" (Jacobs as cited in Lucas, 2005)
2. Curriculum Mapping System - a software that allows curriculum mapping
3. Alignment - "the link among standards and the curriculum, instructional materials, methods and assessments" (Carr and Harris, as cited in Lucas, 2005)
4. Standards - the essential knowledge and skills that are prescribed by a body of experts or a regulating agency
5. Learning analytics (LA) is the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs. Learning analytics are largely concerned with improving learner success. (Siemens, et al., 2011)

## Literature Review

"Curriculum mapping is a process for recording what content and skills are actually taught in a classroom, school, or district during a longer period of time." (ASCD, 2001) Curriculum mapping can be considered the equivalent of the lesson plan in the curriculum level. It can be done with paper and pencil but current practices usually involve using a curriculum mapping system software. If the teachers are distributed in different places and different time then an online curriculum mapping system will be necessary for collaboration.

Curriculum mapping had been practised since the 1970s (ASCD, 2001) but there seems to be a lack of schools in the Philippines using an online curriculum mapping system for distributed curriculum planning. Related to this issue is teacher empowerment in relation to curriculum development. (Carl, 2005; 2009) Teachers do not think curriculum development is part of their work. The system of curriculum development for basic education in the country appears to be the exclusive domain of elite curriculum development experts. Even if school teachers participate, only a select few are invited such that most classroom teachers are implementers rather than partners in curriculum development. This may be a significant factor in school teachers' lack of ownership of curricular reforms and perennial problems of implementation that result in the failure of these reforms. The teachers are usually introduced to the curriculum only a few months before the start of implementation via workshops and conference. Teachers then use their curricular-instructional gatekeeping role in the classroom to resist reform and continue teaching as they have in the past. Some teachers will think of the curriculum guides as strict recipes or legislated code that do not allow modification even if they are aware of differences in classroom and community context. If the teachers are part of a community involved in open design and development of the curriculum there may be an opportunity to harness the wisdom of the crowds, that is, base the reforms on the rich experiences of classroom teachers and increase their sense of ownership of the curriculum and its innovations.

The presence of a persistent and open curriculum mapping system may also mitigate the loss of institutional knowledge due to the retirement of teachers. With paper based curriculum mapping the documents are usually lost or are stored in archives. With an online curriculum mapping, new faculty will be able to access the work of the expert teachers who had already retired and learn from their design documents.

On the other hand, the participant-teachers/faculty may simply find the process tedious and an added burden that does not add value to their work. In that case the study may provide a basis for teaching education students and guiding other educators about the problems with curriculum mapping.

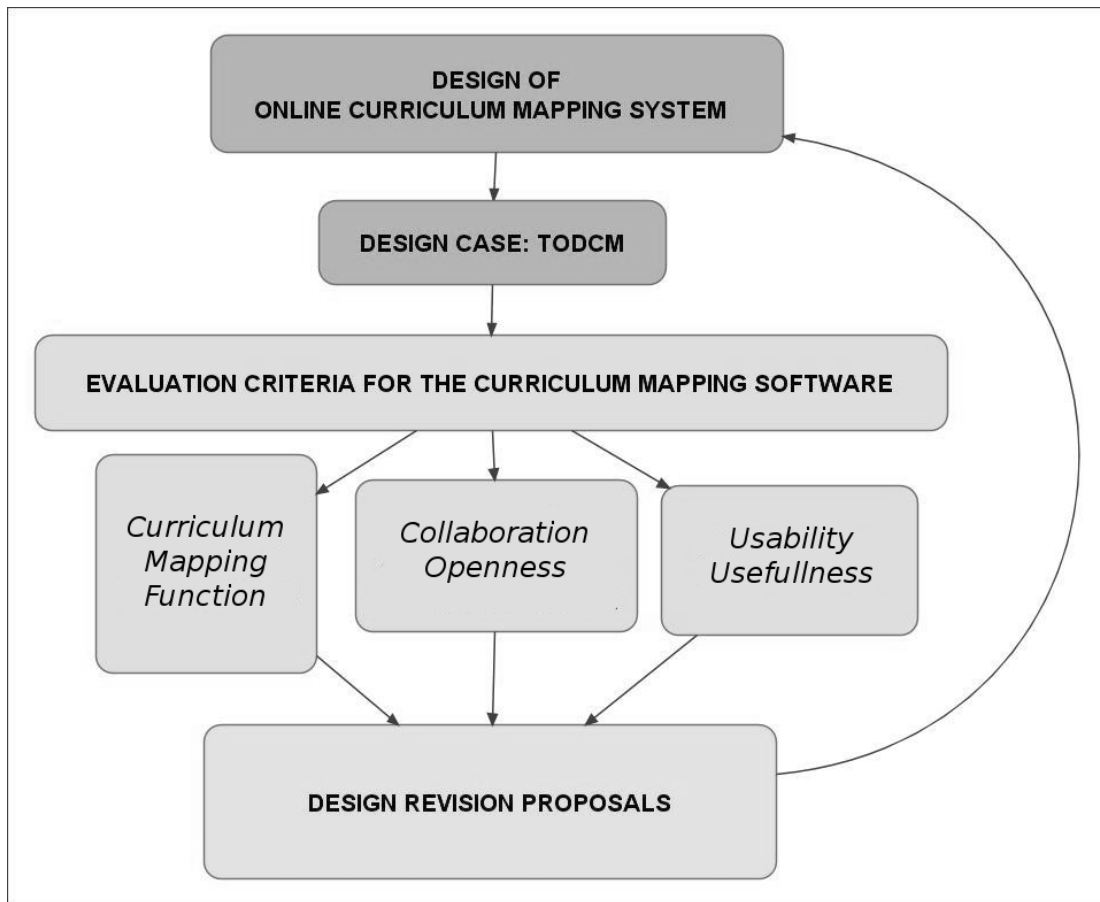
Case studies on the use of curriculum mapping systems had been documented in the work of Heidi Hayes Jacobs (See 2004; Jacobs & Johnson, 2009). But these are reports from advocates of the process and may be biased towards positive results.

A more objective study is the dissertation of Ralph Michael Lucas (2005), wherein he found that teachers perceived the mapping process "to be particularly effective for the alignment of curriculum and long range planning, and slightly less useful for short range planning". But in general he stated that "curriculum mapping is an efficient and effective tool to plan for instruction and to align the taught and written curriculum with required assessments". This study is about K-12 education.

For higher education, the study of Kay Pippin Uchiyama and Jean Radin (2008) found that "curriculum mapping provided a method to not only align and articulate the curriculum, but also a way to foster collaboration and collegiality of those participating in the process. The interaction among participants ... promoted collaboration and collegiality, allowing the participants to share knowledge and beliefs about teaching and learning."

A related idea is John Biggs' "constructive alignment" (Biggs, 1996) which was one of the concepts used by David Jones in his proposed alignment project that would integrate curriculum mapping in an LMS (Jones, 2010). However this paper does not incorporate constructive alignment in its conceptual framework.

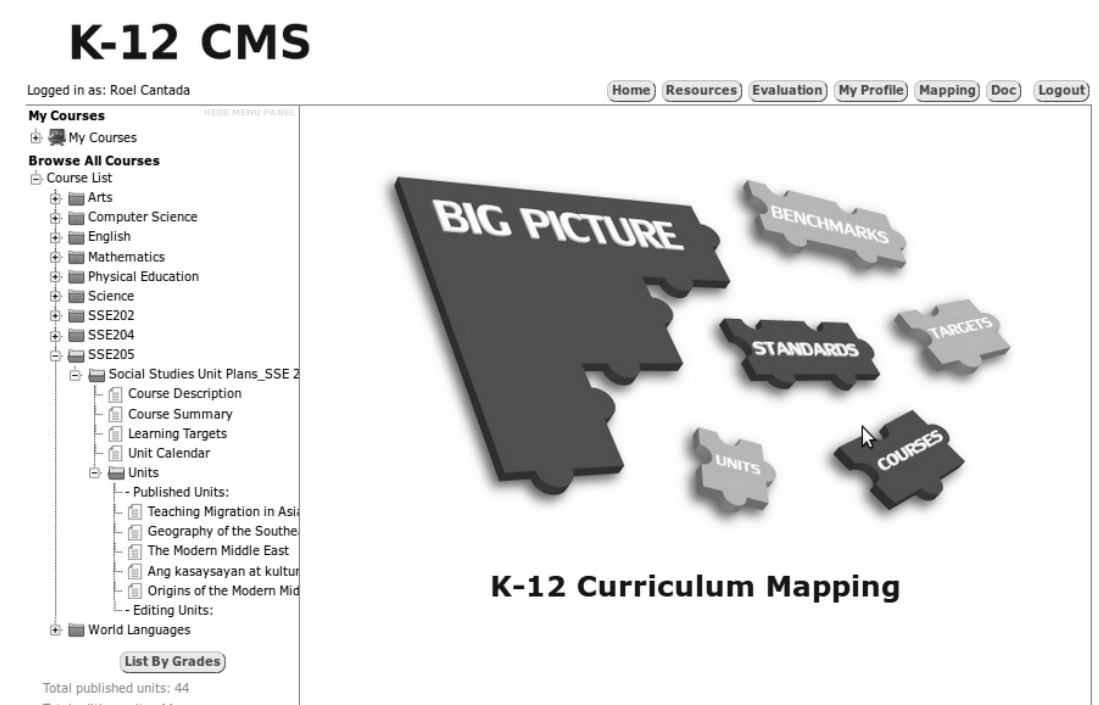
The research framework of the study is shown in **Figure 1**.



**Figure 1** Research framework

## Methodology

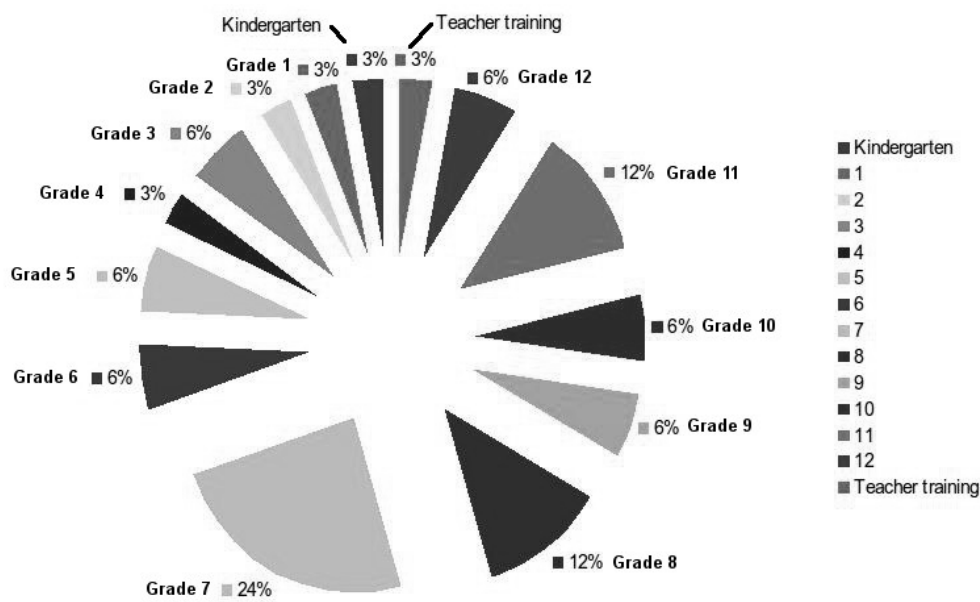
An instance of the TODCM software was installed online and used to teach graduate students in three Social Studies education courses from 2012 to 2013 in full e-learning mode. Two (2) faculty members including the researcher, and fifteen (15) graduate students participated in the online curriculum mapping. The participants were distributed across the Philippines and outside the country.



**Figure 2** Front page of TODCM

Throughout this period a total of 22 course proposals with 67 units were produced. The first class project had students create an integrated curriculum for K-12 produced 10 course proposals with 19 units on economics and politics. The second class project produced 11 self-contained course proposals with 25 units on K-12 geography and history. The third class project is a single course proposal on "Asian migration during the Cold War era" with 23 units. A course here refers to one Academic year study, while a unit is a few months of the academic year. Only sample units were produced for each course proposal and not for the entire year.

**Figure 3** shows the scope of course proposals in terms of grades in the basic education program. Please note that some proposals are multi-grade.



**Figure 3** Distribution of grade/levels covered by course proposals

Participants were then invited to evaluate the online curriculum mapping software by answering an anonymous online survey that contained Likert items. Informed consent was solicited via email and in the first page of the online survey. Of the 16 participants in the curriculum mapping projects (15 graduate students and 1 faculty) only 7 responded to the survey.

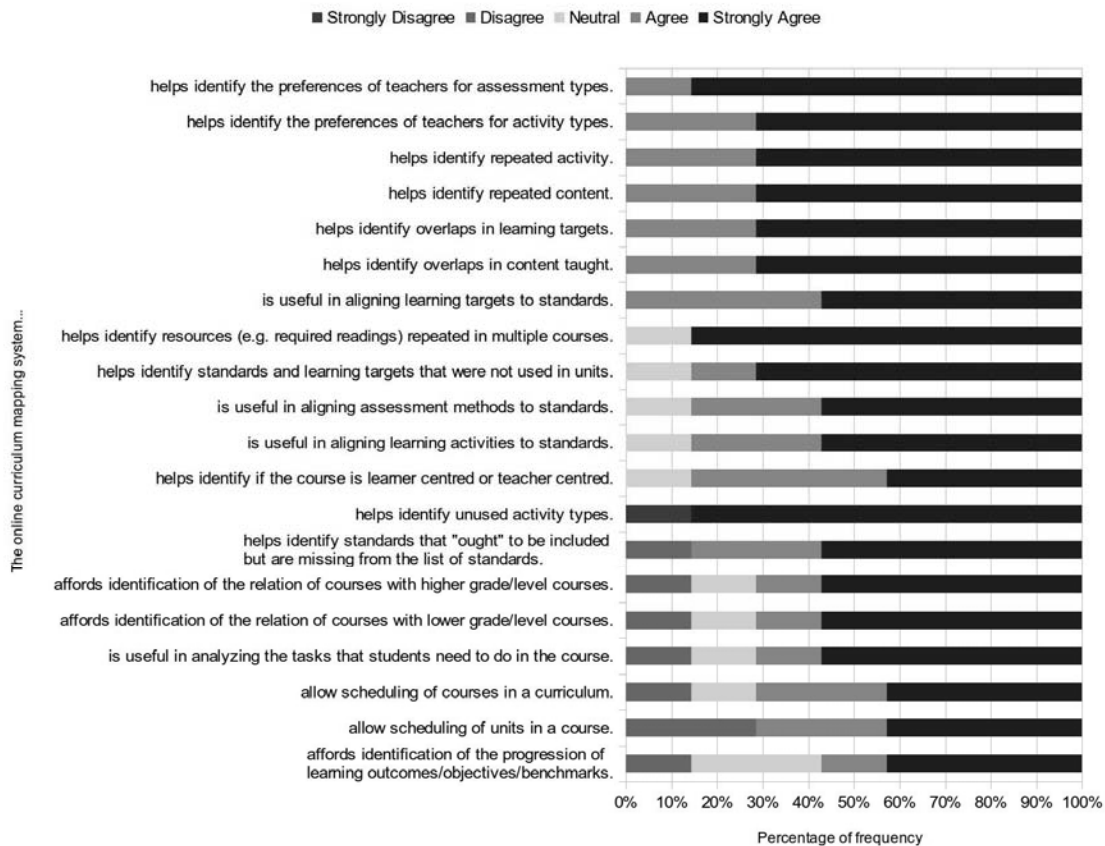
Although the number of respondents is small (7) I focus on their insights about the design of online curriculum mapping system rather than the generalizability of their perceptions to other curriculum planners. This perspective is adapted from literature on the acceptability of small sample sizes in usability studies that claim that five evaluators will be able to find 80-85% of the problem in software (Nielsen & Landauer, 1993; Turner, Lewis, & Nielsen, 2006). This claim is of course controversial, and I argue that the seven participants are knowledgeable enough about the software given that they have used it for a long time (3 semesters) in three projects. At this phase of this project, the primary focus is to redesign the curriculum mapping system so as to present a curriculum mapping software that meets the needs of distance education program/curriculum planners in future iterations of the study.

Percentage frequencies of their response were generated from the survey data to determine agreement about the pre-specified criteria for evaluating the software. The findings are then compared to the notes of the researcher as participant-observer in the curriculum mapping projects.

## Findings

The result of the survey on the perceptions of the educator participants on the online CMS are presented in separate sections for curriculum mapping functions, support for collaboration and openness, usability and usefulness.

## Curriculum Mapping Functions



**Figure 4** Perceptions of TODCM curriculum mapping functions

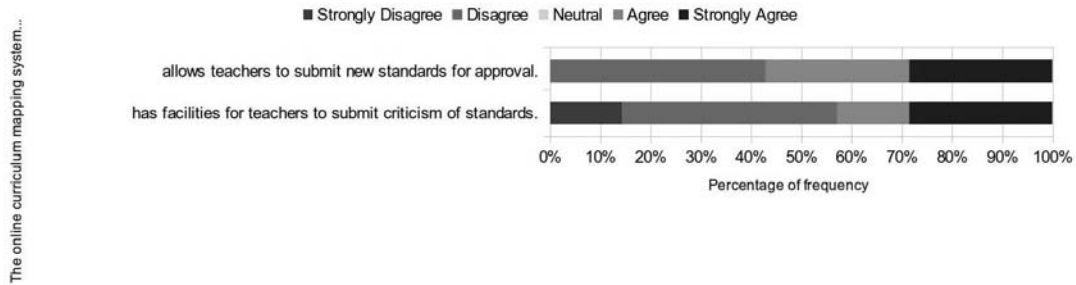
Figure 4 shows that 100% of respondents agree that the CMS helps identify teacher preferred assessment and activity types, overlaps in content and learning targets, repeated content and activities. 100% of respondents also agree that the CMS is useful for aligning learning targets to standards.

85.71% agree that the CMS helps identify resources repeated in multiple courses; identify standards, learning targets, and activity types that were not used in the unit plans. 85.71% agree that it can help identify standards that *ought* to be included but are missing from the list of standards.

85.71% of the respondents agree that it helps identify if the course is learner-centred or teacher-centred. 71.43% agree that it is useful in analysing tasks that students need to do in a course; and allows scheduling of courses and units in a curriculum.

71.43% of the respondents agree that the CMS affords the identification of the relation of courses with higher and lower grade or level of courses. 57.14% agree that it affords

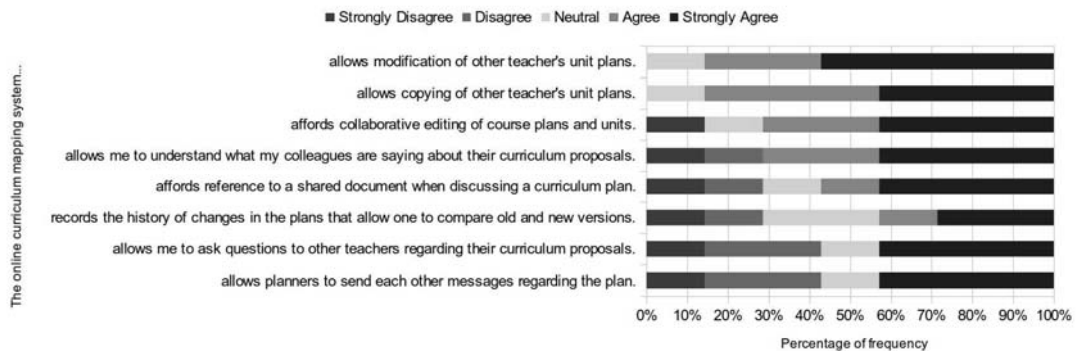
identification of the progression of learning outcomes, objectives or benchmarks. 28.57% disagree that it affords the identification of this progression.



**Figure 5** Perceptions of curriculum mapping functions, negative items.

**Figure 5** shows that 57.14% disagree that the CMS has facilities for teachers to submit criticism of standards while 42.86% agree that it has the facilities. And 57.14% agree that it allow teachers to submit new standards for approval, but 42.86 disagree.

## Collaboration



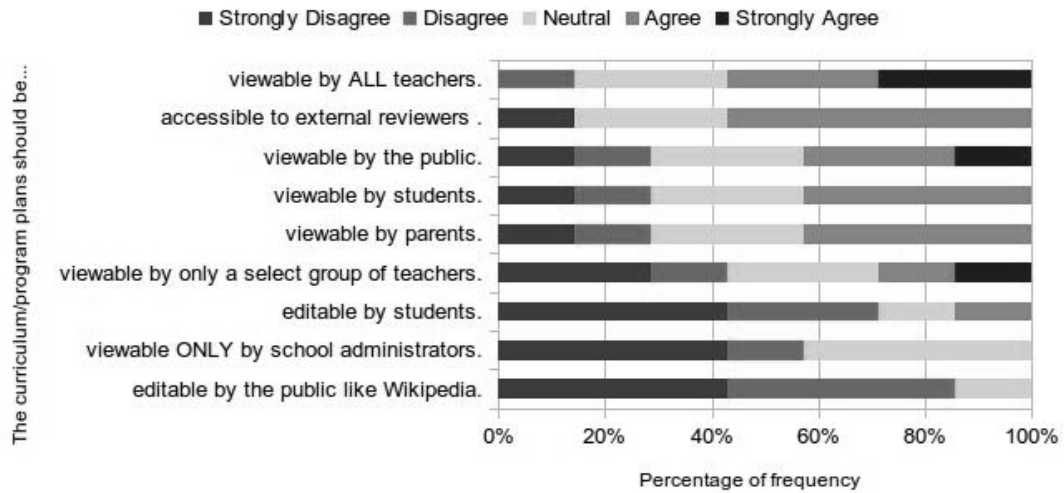
**Figure 6** Perception of support for collaboration

**Figure 6** shows that 85.71% of the respondents agree that the CMS allows modification and copying of other teacher's unit plans. 71.43% agree that the CMS affords collaborative editing of course plans and units, and allows them to understand what their colleagues are saying about their curriculum proposal.

57.14% agree that when discuss a curriculum plan they can refer to the CMS as a shared document. For example participants can simply point to a link to the CMS unit plan rather than send each other PDF copies of the plan, thereby ensuring that they are looking at the same version of the document. 42.86% perceived the ability of the system to compare and keep track of version changes, while 28.57% failed to do so.

An equal percentage of respondents agree (42.86%) and disagree (42.86) that the CMS allows them to send messages and questions about each other's plans and curriculum proposals.

## Openness



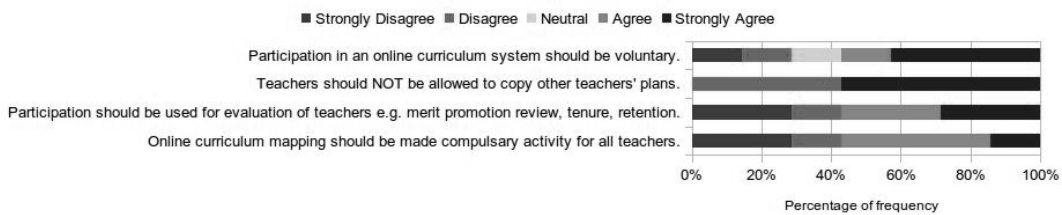
**Figure 7** Perceptions of support for openness of online CMS plans

**Figure 7** shows that 57.14% of respondents agree that the CMS plans should be viewable by all teachers and external reviewers. 42.86% of respondents agree that the CMS plans should be viewable by the general public, including parents and students while 28.57% disagree.

42.86% disagree that the CMS plans should be viewable by only a select group of teachers, while 28.57 agree. 57.14% disagree that the plans should be exclusively viewable by school administrators and no one agree.

71.43% of the respondents do not want the CMS plans to be editable by students and only 14.29% agree that it should be editable by students. 85.71% disagree to the CMS plans being editable by the public like Wikipedia and no one agree to this level of openness.



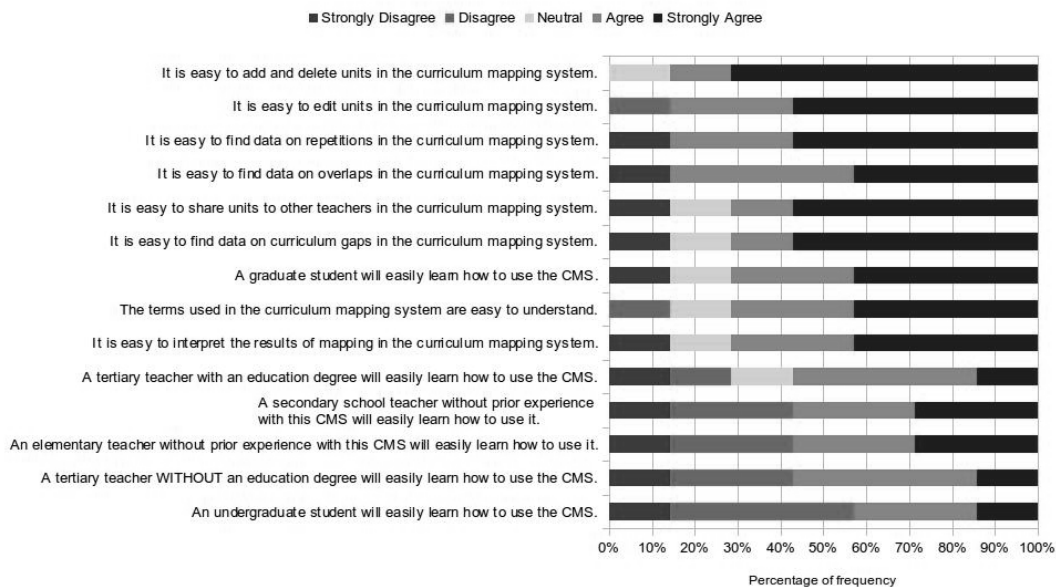


**Figure 8** Perceptions of participation in the online CMS

In addition **Figure 8** shows that 57.14% of the respondents agree that teachers should *not* be allowed to copy other teacher's plans while 42.86 think that teachers should be allowed to copy.

Related to the issue of openness is how should teachers participate in the online CMS? 57.14% agree that it should be made compulsory and voluntary. But there is a stronger agreement (42.8% strongly agree) for voluntary participation as oppose to compulsory (42.8% agree) . 42.86% disagree that participation should be made compulsory and 28.57% disagree that participation should be voluntary.

57.14% also think that participation should be used for evaluation of teachers like review for merit promotion, tenure and retention. 42.86% disagree that it should be used for evaluation. There are no neutral responses on compulsory participation and the use of participation for teacher evaluation implying strong opinion about these issues.



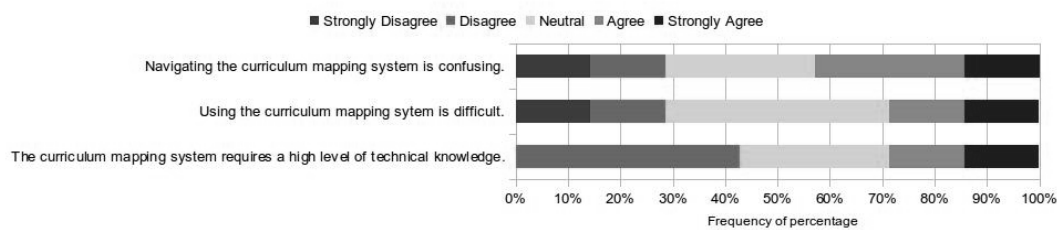
**Figure 9** Perceptions of the online CMS' usability

## Usability

**Figure 9** shows that 85.71% of the respondents agree that it is easy to add and delete units; and find data on repetitions and overlaps in the CMS. 71.43% says it is easy to find data on curriculum gaps and to interpret the results of mapping. 71.43% also agree that the terms used in the CMS are easy to understand and a graduate student will easily learn how to use the CMS.

57.14% agree that a tertiary teacher with or without an education degree; and elementary and secondary teachers without prior experience with the CMS will easily learn how to use it. 42.86% disagree that elementary and secondary teachers without prior experience with the CMS; and tertiary teachers *without* an education degree will easily learn how to use the system.

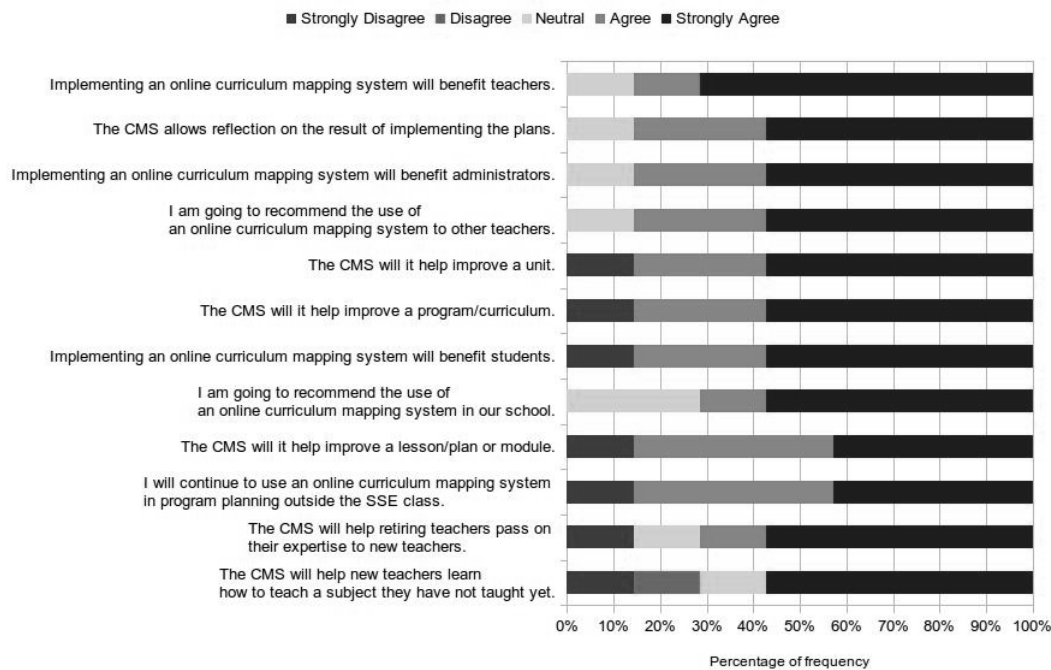
57.14% of respondents disagree that undergraduate students will easily learn how to use the CMS, while 42.86 agree.



**Figure 10** Perceptions of usability, negative statements

**Figure 10** shows that 42.86% of the respondents agree that navigating the CMS is confusing, while 28.57% disagree that it is confusing. An equal number of respondents agree and disagree (28.57%) that the curriculum mapping is difficult to use. 42.86% do NOT think that the CMS requires a high level of technical knowledge, while 28.57% agrees that it requires a high level of technical knowledge.

## Usefulness

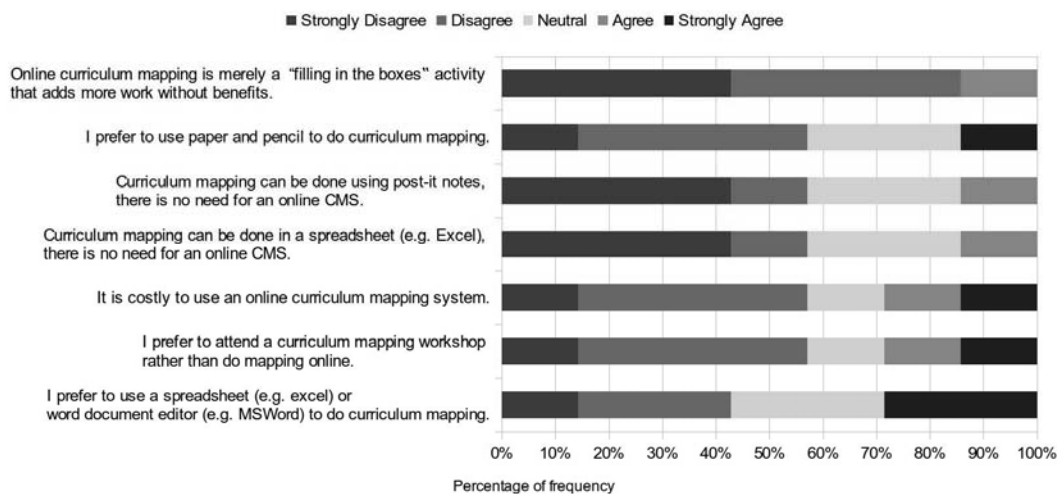


**Figure 11** Perceptions of the online CMS' usefulness

**Figure 11** shows that 85.71% of respondents agree that the CMS will benefit teachers, administrators, and students. They agree that it allows reflection on the result of implementation, and it will help improve the lesson, program, unit and curriculum. Furthermore, they intend to recommend the use of the CMS to other teachers and continue using it outside their graduate course at the university. 71.43% agree to recommend the CMS to their schools.

71.43% of the respondents agree that the CMS will help retiring teachers pass on their expertise to new teachers. And 57.14% agree that it will help new teachers learn how to teach subjects that they have not taught yet. 28.57% disagree that it will help new teachers learn how to teach new subjects.

The findings regarding their perception of positive statements about the usefulness of the CMS is consistent with their perception about the negative statements. **Figure 12** shows that 85.71% disagree that the CMS is only a "filling-in-the-boxes" activity that add more work without benefits. 57.14% disagree to doing curriculum mapping via alternative means such as paper, post-it, and through curriculum mapping workshops. 28.57% do prefer to attend curriculum mapping workshops rather than doing mapping online.



**Figure 12** Perceptions of usefulness, negative statements

57.14% disagree that a spreadsheet can be used to do CMS and there is no need for the online CMS. 42.86% does not prefer a spreadsheet or document editor to do curriculum mapping while 28.57% said they prefer to use these tools for curriculum mapping.

57.14% of the respondents disagree that the online CMS is costly to use. While 28.57% strongly agree that it is costly to use.

### Conclusion

It is acknowledge that the small number of participants (7) limits the generalizability of their perceptions to the sample's program. However it is argued that the coverage of tasks and the amount time working on curriculum mapping with the software allows the participants to provide valuable insights on the online curriculum mapping system and its potential use in curriculum and program planning in distance education. Future research focusing on participants adopting an improved design of the online curriculum mapping system will remedy this with a larger sample size and covering other programs.

Most respondents believe that the online CMS serves the basic curriculum mapping needs of alignment, identification of gaps, and identification of repetitions and duplications in the curriculum. But there is a lack of facility for criticism of standards or outcomes in a similar manner as items in an online assessment is subjected to standards setting and analysis by experts.

Most educators agree that the CMS allows sharing, copying, and collaborative editing of courses and unit plans. However TODCM lacks a messaging facility. Online communication about the plans has to be done outside the CMS.

Many of the respondents agree to open the CMS plans for viewing but there is strong opposition to the plans being editable by students and the general public. A majority

also do not want their plans to be copied by other teachers that contradict the purpose of openness of educational resources. This belief is also contradictory to the openness of course guides in cMOOCs wherein some are deposited in wikis for public editing.

Although many respondents find the online CMS easy to use, there are still many who find navigation confusing. The respondents did think that the CMS will benefit teachers, administrators and students. And they intend to use and recommend it in their schools.

Although the study found positive perceptions towards the CMS, one of the main weaknesses of the online CMS is that it is not integrated with a learning platform such as an LMS. This was originally intended by the developer but was abandoned for personal reasons (Tong, 2013). The problem with a stand-alone CMS is that it is difficult to align the outcomes and other design plans with the actual implementation of the plans in the learning platform. The TODCM CMS' smallest unit of analysis is the curriculum unit. Outcomes or standards are listed in the stage one section of the unit plan then the assessment in the next stage, then the activities, and so on. But there is no facility within the unit plan to link specific assessment or activity to specific outcomes or standards. The data from such a system will be difficult to match with let's say a distance education institutions LMS or MOOC platform data. Even if data matching is possible it will be costly.

An alternative to this stand-alone CMS is what David Jones proposed in his alignment project proposal (Jones, 2010). He proposed to equip the MOODLE LMS with curriculum mapping facilities based on the MOODLE's outcomes system. However, Jones' proposal was also abandoned for personal reasons (Jones, 2011).

It is recommended that future researchers continue Jones study of curriculum mapping in his blog. Of particular note is his deepening of the understanding of variations in the theory of alignment (e.g. instructional alignment versus constructive alignment).

Furthermore it is proposed that distance education institutions adopting learning analytics should consider collecting design data as annotations in the course sites, or personal learning environments (PLE) of students. Such a facility could aggregate the annotations into design documents inside an LMS or even outside as a learning design aggregator and be used to make sense of engagement data of students with the LMS or PLE.

## **Acknowledgement**

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# Online learning gamification for a course on lawyer affairs

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**Abstract:** The article discusses a gamification model of teaching and independent study for the course of Lawyer Affairs. This model is primarily designed for part-time students who are trying to pass the judicial examination. Therefore, the tone of characters and pictures design in the game is very easy and even a little bit humorous. Following the four principles of gamification, the model has been designed to use a game includes four kinds of progressive roles. Student can experience the development from law school student to great lawyer by sequentially level up from law school student to paralegal, practicing lawyer and great lawyer. In addition, the four principles of gamification, goal, rules, feedback system and voluntary participation, will also be fully reflected. To achieve the “goal” of developing to next role, students “voluntarily” complete a series of online test under “rules” and get scores which contain the “feedback” function. At the same time, the game embeds traditional lecture notes, video courseware, case library, in-class exercises, formative assessment, mock judicial examination, mock moot lawsuit and challenging Q & A etc, some of which are in the form of online test, to ensure the integrity and quality of the teaching process. This model is based on constructivism learning theory which claims that knowledge is not acquired through lectures, but through construction of meaning when digesting learning resources in specific scenarios. When it comes to this model, in different scenarios created by the game, students can not only acquire knowledge, but also get immediate self-evaluation and know the progress of learning task. This allows students understand the level they in and how far are they from the next level. Moreover, to ensure that students have continuous self-confidence and motivation on their game-based learning, the game environment will be continuously improved based on their data analysis of learning progress.

**Keywords:** Online learning, Gamification, Lawyer affairs, Edutainment, Constructivism

## **I. Main theory that the design instructional and development of application are based on**

Constructivism is a further development of cognitive learning theory. It believes that knowledge could be obtained by learner in certain situations, with the help of teachers, learning partners and necessary learning materials, by the meaning of construction. Based on constructivism learning theory, the Scaffolding Instruction, Anchored Instruction and other proven teaching methods has been developed.

We believe that the constructivism learning theory is the main theoretical basis of our design which refers to the “Gamification” and “Edutainment”. According to the constructivism learning theory, learner-centered does not require teacher to teach



knowledge directly to the learner, but with full respect for the learner as a cognitive subject and constructor of meaning and knowledge. Actually, constructivism learning theory is defined as active construction of new knowledge based on a learner's prior experience. (Koohang, Riley, Smith, & Schreurs, 2009) And the teacher mostly plays the role of assistant and encourager. Content from textbook is no longer the main content to teach, nor is the only resource of learning, but one of the meaning objects of learner's actively construction. Multimedia is used for creating certain situation, group discussion or exploration. It forms a strong interactive relationship among teacher, teaching media, learning resource and learner.

Some scholars believe that today's education face major problems around student motivation and engagement. (Lee & Hammer, 2011) As Confucius said, "they who know the truth are not equal to those who love it, and they who love it are not equal to those who delight in it." A pursuit of "enjoy learning" is the supreme state of learning. The process of design and implementation of our curriculum bases on concept of "edutainment" which is one of the frontier in the field of educational technology. As it's foundation, the idea respects the students' life value. By creating, using and managing proper technical processes and resources, the design wants to promote students' life experience and joys, and combine them with purposes of teaching and means of learning. It is in line with the "people-oriented" educational philosophy and makes educational technology more humane. However, Edutainment is not the simple summation of entertainment and education. It is committed to create a learning environment for learners, in which learning could be not only a serious game, but also a work needs to pay labors. (González & Area, 2013)

Considered that in the network teaching and learning, students' learning goals, learning style and learning abilities are different from full-time study, the design and implementation of the teaching content, activities and resources must fully display the characteristics of online course. It should be always follow the view of "learning can be fun and promoted by entertainment", and, emphasize the design and management of autonomous learning and self-evaluation path. Thus, the initiative and creativity of the learners can be fully into play.

The overall design of the online teaching follows the philosophy of "happy learning" and "edutainment", clearly grasps the characteristic and demand of online learner of distance education. It is designed to enable students to master the main content of rules of lawyer affairs and flexible use what they learned, such as method of work and law application in different kinds of business.

In the design of online teaching, important points of knowledge have been extracted from main content of textbook and converted to interactive multimedia resources which penetrated to each module of teaching and learning system of the website of course. As a carrier, the edutainment game(what later we mean "Be Great Lawyer"), combining multimedia resources, such as videos, slides, online examinations, interactive A&Q, blog and twitter, improve teaching and learning to a big fun. At the same time, the game will spread and popularize the curriculum by ability of communication of internet.

## II. The design of online learning gamification for the course of “Lawyer Affairs” (<http://tvu.everidc.com>)

In the design of online learning for “Lawyer affairs”, we didn’t follow the traditional mode of teacher dominated learning which was, for example, provision of written materials, explaining views according to the textbook, giving assignment and classroom discussion. Actually, the printed textbooks and traditional instruction are in crisis. Some countries already have announced the establishment of educational politics destined to substitute the textbooks by digital educational materials. (González & Area, 2013) By using technique of modern distance education and online study platform, we create a role-developed edutainment game named “Be Great Lawyer” which shows the most interesting parts of this design.

It is designed as not only a flash game, but also a path to independent study and self-evaluation for learners. The learning process has been divided into four progressive modules representing four progressive roles which are law school student, paralegal, practicing lawyer and great lawyer. In each of the modules, from simple to complex, various forms of learning tasks including instructions, open class videos, online exercises, online analog judicial examinations, analog lawsuit, will be set for learner(or, player) to complete and, therefore, get himself level up. Reasonably, it provides learner personal learning progress which could be checked at any time. “Be Great Lawyer”, as a learner-centered gamification courseware, guide the learners to complete learning tasks step by step by creating a gaming environment.(See Figure 1)



Figure 1. The gamification learning path of the “Be Great Lawyer”

“Be Great Lawyer”, as a one-stop service for learners, is designed to be edutainment and change the boring study into an relaxing game from which learners could acquire knowledge in the fun of game. After signing and logging in the game with name(student’s number) and password, learner can independently complete the tasks, for example, reading instructions, watch videos and take online tests, step by step, level up from “law school student” to “great lawyer”. The whole gamification design include the following four-level-role modules:

- a) The “law school student” should complete certain requirements of online learning(reading instructions and watching open class videos) and score 60% from four online tests to upgrade to the “paralegal”;
- b) The “paralegal” is required to score 60% by completing four online analog judicial examinations to upgrade to the “practicing lawyer”;
- c) The “practicing lawyer” can upgrade to the “great lawyer” by complete four online analog lawsuit(read brief introduction, choose evidence and upload a report);
- d) When a learner achieves the level of “great lawyer”, the case may be by way of challenge quiz with team of teachers who were divided into three groups and each group has two teachers(actually in the form of online test), and score 60% as pass.

Finally, learner who has completed all tasks can download a certain percentage of real questions of the final exam.

Just as Cristina Ioana Muntean said, any application, task, process or context can theoretically be gamified. (Muntean, 2011) The advantage of “Be Great Lawyer” points in following two aspects. On the one hand, it combines teaching and learning process, such as guidance and instruction, formative assessment, practice and examination, into a game. On the other hand, the process of teaching and learning has been divided to different levels and learning resources have been embedded into corresponding unit. Therefore, leaner could easily find a right path and guidance for studying and self-evaluation step by step.

### **III. The development of mobile learning application for “Lawyer Affairs”**

With the same name of “Be Great Lawyer”, the mobile application for “Law Affairs” is designed as an elearning game for learners who use mobile devices. To fit mobile devices, it has been redesigned and improved in some aspects on the basis of “Lawyer Affairs” online course project which has been described in part II. And some of its data, such as the instructions, classic case study and formative assessment, are synchronized with the web site of the course. Therefore, learners can synchronize their data on both web site and mobile devices.

In this mobile learning application, the teaching and learning content has been published on internet with B/S structure. The browser supports visiting the internet by common PC and mobile to ensure that learners in different networks environment could run the learning application smoothly.

Continue pre-using of the asp plus access(Mssql) technology framework, the application uses auxiliary ajax technology, such as iQuery, to bring about interactions and increase experience of user-friendly. The web pages have been designed following div plus css model and have a good windows compatibility and browser compatibility.

In the mobile application of “Be Great Lawyer”, learning resources are designed in accordance with the virtual roles which are law school student, paralegal, practicing lawyer and great lawyer, constructing capability from low to high as follows:

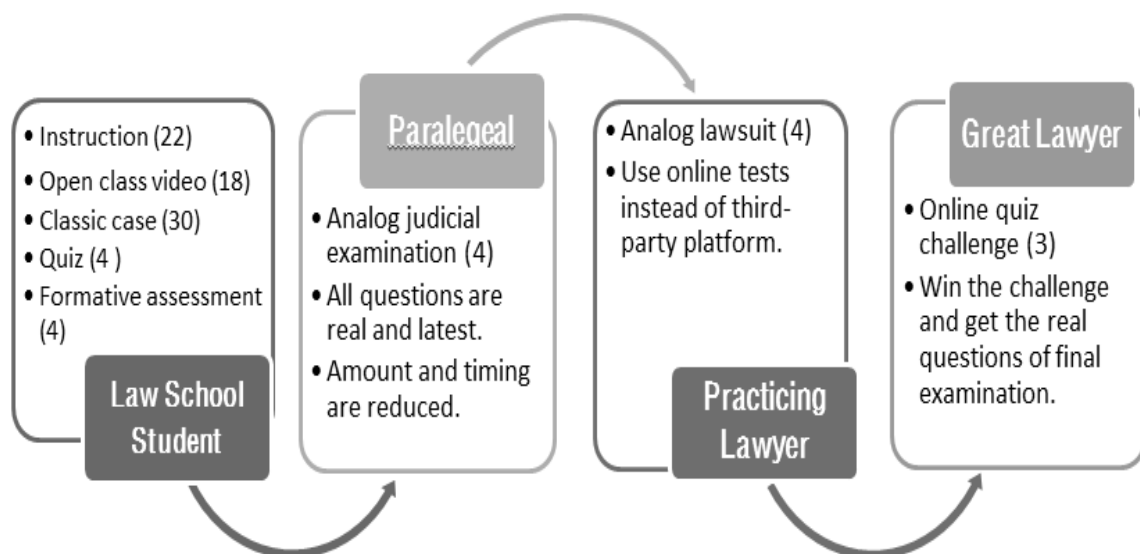
- a) **Module “Law School Student”(Figure 2):** Instructions, classic case studies, open class videos and online test(quiz and formative assessment) for learner’s individual learning. Instructions show learners course descriptions, syllabus and teaching opinions, help them to find study objectives, stimulate their learning motivations. After reading instructions, watch open class videos and studying classic cases, learners could try to pass the online tests by completing quiz and formative assessment online, therefore, to evaluate the effect of learning. Figure B shows some screenshots of “law school student” page from mobile.



Figure 2. App screenshots of module “law school student” from mobile

- b) **Module “Paralegal”**: Online analog judicial examination gives learners real experience of the most difficult examination of China which they must pass if they want to get lawyer’s practicing certification. Considering of giving learners real experience and avoiding the learning tasks too onerous for “paralegal” learners, all the questions are chosen from real and latest National Judicial Examination but amount and timing are reduced from 100 questions in 3 hours to 40 questions in 2 hours every volume (totally 4 volumes).
- c) **Module “Practicing Lawyer”**: In this part, before now we planned to change individual learning to group cooperative learning to complete and submit a report by group of given case in analog lawsuit. But consider that it had been using third-party platform which need independent ID and password to login, we decided to use online tests instead, temporarily, to facilitate the learners.
- d) **Module “Great Lawyer”**: When level up to “great lawyer”, learners can challenge teachers by online quiz. Learners who win the challenge will get a file in which there are a certain percentage (probably no more than 50% points) of real questions of final examination. The significance of this part is to be a final review of whole learning process.

The whole learning process of this design shows as following Figure 3:



**Figure 3. Learning resources and tasks for each level of gamified role**

Ferial Khaddage and his collaborators tried to derive 10 critical functions for integrating gamification in mobile apps for education, such as creating fun and enjoyment, creating activity, improving learning process and creating engagement and motivation. (Khaddage, Lattemann, & Acosta-Díaz) And we believe our design of “Be Great Lawyer” has covered several of them.

#### **IV. Conclusions**

We believe that an outstanding instructional design is the most important part of online learning. Traditional online courses and mobile learning applications are always provides rich and high quality teaching resources. But some of them are not well designed to give clear guidelines for learners to effectively using and understanding the content of resources step by step. The learners may not find a path or combination between resources and learning behavior. Therefore, lacking of instructional design makes a lot of high quality resources only playing a role of furnishings with low efficiency and no good effect.

“Be Great Lawyer” jumps out of the traditional mode of distance education which refered to a single supplying of learning resources. It combines the learning resource and instructional design into a role playing game. By setting four levels and creating four anthropomorphic roles in the game, rich and high quality resources are assigned to each level to be applied and completed as a task. It will guide learner to have an orderly and gradual manner to learn and make a self-evaluation. Overall, it refers to concepts of “Gamification” which works to satisfy some of the most fundamental human desires: recognition and reward, status, achievement, competition and collaboration, self-expression, and altruism. (González & Area, 2013)

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# Development of a hybrid system to enhance borderless learning: Challenges and opportunities for the underserved

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## Abstract

With increasing and easily accessible tools in the digital era, the instructional design of blended-mode platforms to facilitate student-centred learning should consider the multiple-mode approaches that could enhance multiple intelligences of Millennial Generation or Gen Y learners from diverse socio-cultural backgrounds and levels of achievement. If well guided with exposure of sustainable awareness and enriched knowledge through online library and sharing of Open Educational Resources (OER) in course delivery, these groups of learners should gain independent lifelong learning abilities with enhanced motivation and thinking skills. This paper reports on the authors' recent initiative to explore collaborative efforts for borderless learning especially in promoting local wisdom among the underserved in the SEAMEO countries. An interactive student portal entitled 'AllinOne' with hybrid feature consists of the combination of 'Social networking system, Learning Management System (LMS), Google applications, Online library system and Student Management and Information System (SMS&SIS)' is illustrated using flowcharts or diagrams. These include reports on various designs in the hybrid system with elaboration on technical aspects of how learning can be facilitated through mobile or m-learning and e-platforms hosted in the institution of first author from Myanmar who had attended curriculum development workshop to promote borderless learning organized by the second author. This hybrid mode of blended learning platform is mainly anchored on the Oxwall Social Networking Platform with the Learning Tools Interoperability (LTI) framework to enable integration between Moodle and SMS&SIS. The Koha [Integrated Library System (ILS)] and Google Apps (Gmail, Google calendar, Google drive) that are the common features of blended learning platforms were developed and piloted in the two collaborative institutions respectively with feedback of how local wisdoms of the underserved SEAMEO countries could be facilitated. On-line feedback and interview findings are reported on selected respondents of the survey entitled 'Attitudes Towards Use of Technology to Enhance Sustainable Living' (ATUTESL) (validated instrument with item reliability of 0.71) developed by the second and fourth authors prior to the organization of the biennially held 'Search for SEAMEO Young Scientists' (SSYS) regional congress from 4th to 7th March 2014. The analysis of qualitative data revealed that generally the respondents were positive towards blended learning and they expressed the needs to have online library that could better facilitate their learning in the countries of different culture. The implications of study will be deliberated with suggestions of more research on opportunities for e-/m-learning. (391 words)

**Keywords:** Hybrid mode e-/m-learning platforms; integration of student-centred learning approaches; single login; Learning Tools Interoperability (LTI) framework; online library system; Google Apps; local wisdom of the underserved

## Introduction

In the advent of increasingly globalized digital era with easily accessible tools, the instructional design of blended-mode platforms should consider numerous constructivist and communication platforms that could facilitate student-centred learning through self-directed/self-accessed/self-paced knowledge building activities. It is believed that multiple-mode approaches could enhance multiple intelligences of Millennial Generation or Gen Y learners from diverse socio-cultural backgrounds and levels of achievement. These Gen Y (born between 1980s to late 1990s) learners will very soon take over the roles of Gen X (born between 1960s to early 1980s) to dictate the future of the web. If well guided with exposure of sustainable awareness and enriched knowledge, these groups of learners should gain independent lifelong learning abilities with enhanced motivation and thinking skills. It is thus a challenging task for educators to ponder ways to further enhance global learning platforms for all taking into consideration the issues of digital divide and opportunities for the underserved.

### Overview of Study Aim and Research Questions

This paper reports on the recent initiative of the authors in two collaborative institutions to optimize blended-mode platforms for borderless learning especially in promoting local wisdom among the underserved in the SEAMEO countries. The main aim of the study was to develop comprehensive platforms to facilitate online community for all types of people encompassing all the essential features required for borderless learning.

The following research questions serve as guidelines of this study:

- How could technology reach its fullest potential considering the attitudes of all types of users including the underserved who should be benefitted from the e-tools?
- What are the challenges or consideration to be made in advancing Open and Distance Learning (ODL) towards Education for All (EFA) including participants from diverse socio-cultural backgrounds especially the underserved?

The review of literature including framework as elaborated further guide the direction of research using mixed-mode of data analysis (Johnson & Onwuegbuzie, 2004).

### Review of Previous Studies and Framework of Practice

#### Hybrid System for Blended Learning: Issues/Challenges in the Borderless World

Some terminologies that are often described in association with Open and Distant Learning (ODL) in the digital era include web-based/on-line or e-learning, distributed learning, open and flexible learning, hybrid and blended learning (BL). The latter (i.e. BL) has become somewhat of a buzzword in academic and corporate settings in the recent years and was identified by the American Society for Training and Development as one of the top ten trends to emerge in the knowledge delivery industry (Graham, 2004; Rooney, 2003). According to Pannen and Riyanti (2008, p.186), 'blended/hybrid' course is the course that blends online and face-to-face (F2F) delivery. Substantial (30%-79%) proportion of content is delivered online, typically uses online discussions and has some F2F meetings. Graham, Allen and Ure (2003) also stated that BL is usually found in three delivery mode/media/method of learning, i.e. (1) combining online and face-to-face instruction, (2) combining instructional methods and (3) combining instructional modalities or delivery media. The first definition reflects more accurately on the historical emergence of blended learning systems as compared to the latter two that were much debated about since BL was so broadly defined that there



encompass virtually all types of learning systems that involve multiple instructional methods and delivery media (Graham et al., 2003 in Graham, 2004). Examples of commonly used tools in BL platforms are Web 2.0 tools that are the new wave of innovation in teaching and learning of science that allow students to do collaborative learning with enhanced motivation. A study by Alan (2010) highlighted that Middle East countries such as Israel, Saudi Arabia, United Arab Emirates and Qatar have made substantial investments in web-based learning and concluded that students were motivated by Web 2.0 tools. Blog is an example of Web 2.0 tool used as a Learning Management System (LMS) where students can download resources from various websites, give feedback to teacher's contents, prepare digital portfolios, share their ideas, to name a few. Even an online questionnaire/test/quiz using third party tools such as Zoomerang can be developed. The integration of blogs in the traditional teaching and learning process requires teacher's preparation and planning so that applicable and timely activities could be given to students (Arnold Nicholas, 2010).

Oxwall is a free, open source community software platform written in PHP/MySQL. It is created to power online social networks and community-enabled websites for various purposes. Oxwall project is developed and curated by Oxwall foundation. Oxwall is also well known for niche social networks and general purpose websites that need advanced social community capabilities. People use Oxwall software for niche communities, music band fanclubs, crafts exchanges, special private groups, education projects, online classes, etc. LTI stands for Learning Tools Interoperability. With LTI, users are able to operate external applications within a single learning platform. The principal concept of LTI is to establish a standard way of integrating rich learning applications with platforms like Learning Management Systems (LMS), portals, or other educational environments. In LTI (Figure 1) these learning applications are called Tools (delivered by Tool Providers) and the LMS, or platforms, are called Tool Consumers. Participants benefit when other learning applications are integrated into campus platforms, particularly the LMS rather than being stand-alone tools. LTI allows instructors to select and integrate learning applications that create a do-it-yourself environment which changes the relationship with and role of Information Technology (IT) staff. Students and faculty can simply log into the LMS and have access in a single, familiar location to all of the applications and services to which they have rights.

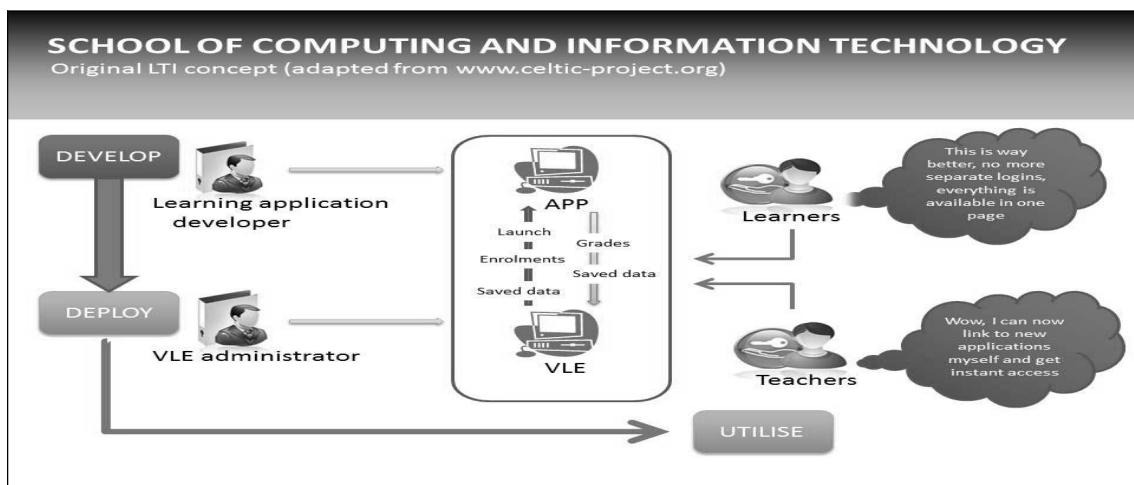


Figure 1. LTI concept (adapted from www.celtic-project.org)

## **Attitudes in Borderless Learning: What, Why and How towards Education for All**

Attitude is succinctly defined by Kind, Jones and Barmby (2007) as the feelings that an individual has about an object or subject e.g. science or technology, based on the beliefs that he or she has on that object/subject. Attitude toward science and technology learning in the borderless world consists of three components, i.e. cognitive (i.e. a person's knowledge, beliefs and ideas about the object/subject), affective (i.e. the feeling that one has about the object/subject) and conation (i.e. a person's natural tendency, mental processes or behavior toward the object/subject) (Zimbardo & Ebbesen, 1970). For example, according to Gardner (1993), there are two types of attitude in science learning, i.e. attitudes towards science (interest in science, attitudes towards scientists or social responsibility in science, etc.) and scientific attitudes (i.e. open-mindedness, honesty, etc.). Attitude, values and motivation are interrelated and important for lifelong learning (henceforth abbreviated as L3). According to educational psychologists, student's motivation is influenced by a number of beliefs, values, interests and attitudes that can be positive or negative in their effects. It is believed that students are motivated to learn when they have positive attitude or value either the outcome or process of learning and they expect that they will be successful (Bandura, 1977; Lefton, 1991; Palmer, 2007). With an increasing amount and easily accessible tools in the digital era, promoting students' positive attitude and motivation for borderless learning (BL) in increasingly globalized world is an imperative move. Students have to be prepared to learn cross-cultural/interdisciplinary curriculum across the national border/edge/boundary, not only developed in their own language, but also in other international languages. BL is part of the ongoing convergence of two archetypal learning environments, i.e. (1) the traditional face-to-face (F2F) learning environment that has been around for centuries; (2) distributed learning environments that have begun to grow and expand in exponential ways as new technologies have expanded the possibilities for distributed communication and interaction using different media/method combinations to address the needs of different audiences (Graham, 2004). In the past, 'a teacher-directed environment with person-to-person interaction in a live synchronous, high fidelity environment' is the common feature in traditional F2F learning. Research showed that the constructivist problem-solving curriculum through situated learning or shared cognition guided by adults as More Knowledgeable Others (MKO)(Larkin, 2002) and capable peers in a learning community or Community of Practice (CoP) was found to be effective by educators/researchers. In the advent of digital era with the emergence of ODL mode that promote Education for All (EFA), this type of CoP can be more effective if facilitated through blended learning platforms that include both digital and non-digital (F2F/conventional) settings.

The study by Crawford, Krajcik & Marx (1999) revealed that CoP with desirable environment could provide opportunities for students who are motivated to engage collaboratively in solving contextual problems when faced with scenarios. In the CoP possibly facilitated through digital platforms, learners and stakeholders are connected for various reasons to interpret, reflect, and negotiate meaning in an open process through meaningful interactions in the community (Wenger, 2000). Realizing that developing scientific skills, values, attitudes and infrastructure is the first step towards improving the nation's ability to use science and technology to promote Education for Sustainable Development (ESD) (Sawahel, 2007), emphasis was placed by many aspiring institutions to promote ESD through inquiry-based education. Among the ways

of developing public understanding on sustainability included alternative strategies initiated by various institutions with evidences to support sound succession planning (Workforce, 2013) of activities through challenging blended mode opportunities. An example is the ‘Search for SEAMEO Young Scientist’ (SSYS) congress that was initiated by the Regional Centre for Science and Mathematics Education (RECSAM) in 1997 with objectives to ‘promote scientific attitudes, awareness, provide a forum/platform for exchange of ideas and experiences’ among youths/students in SEAMEO member countries incorporating BL. SSYS serves as platform for ‘training and reorientation of pedagogical approaches’ using student-centred blended mode Project-based Activities (PBA) and Problem-based Learning (PBL).

### Methodology and Data Analysis

This section outlines the collaborative efforts in designing and optimizing use of borderless learning platforms with reports on the challenges faced and pilot studies.

### Development of Hybrid System to Enhance Blended Learning in Borderless World

An interactive student portal entitled ‘AllinOne’ hosted in Sentral College with hybrid feature mainly using Oxwall Social Networking Platform anchored on the Learning Tools Interoperability (LTI) framework (Figure 2) to enable integration between Moodle and SMS&SIS was developed by the first author. It consists of the combination of ‘Social networking system, Learning Management System (LMS), Google applications, Online library system and Student Management and Information System (SMS&SIS). The following diagrams and flowcharts (Figure 3 to Figure 12) further illustrate the essential features of this hybrid system.

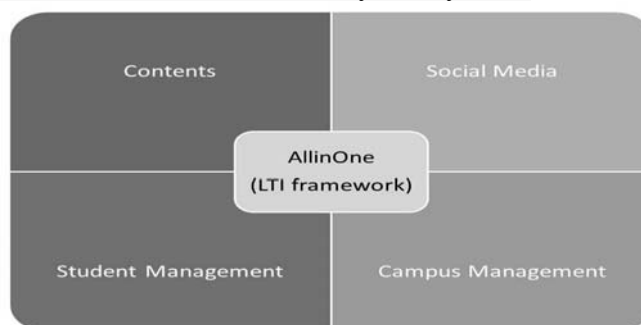


Figure 2. Overall view of AllinOne (LTI framework)

Figure 3. An overview of ‘AllinOne’ portal hosted at Sentral College with illustration on FB and feedback from respondent requesting online library system.

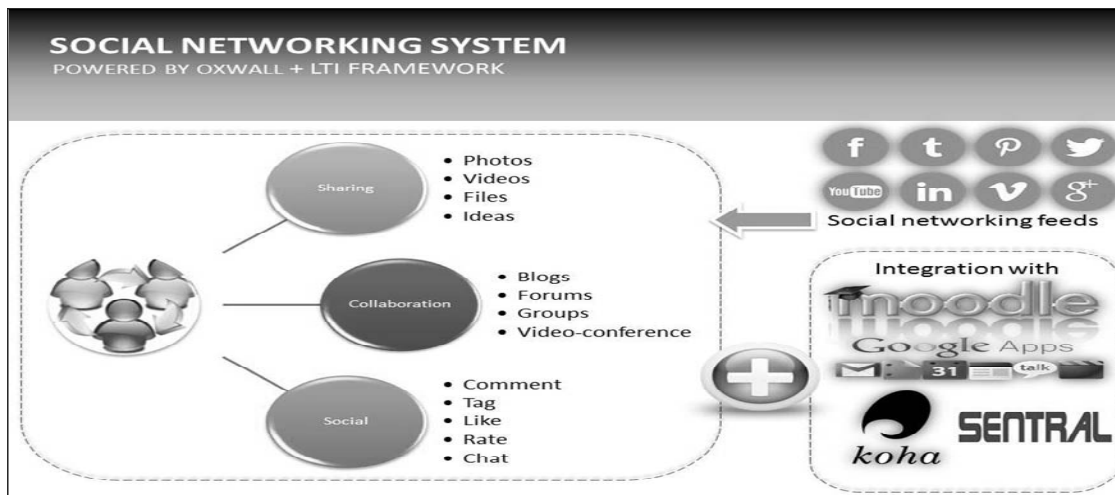


Figure 4. The illustrative of 'AllinOne' about the structure of Social Networking System powered by Oxwall and Learning Tools Interoperability (LTI) Framework.

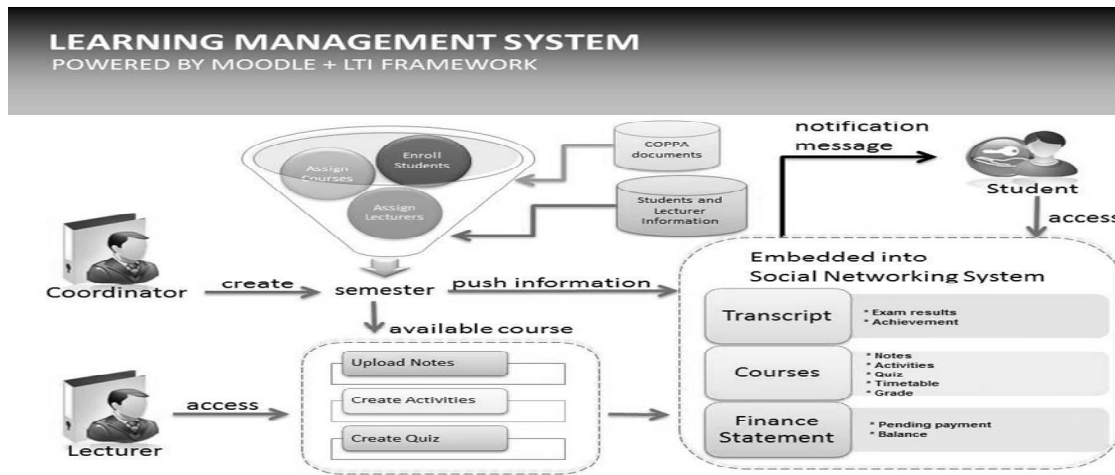


Figure 5. The illustrative diagram of 'AllinOne' about the structure of Learning Management System powered by Moodle and Learning Tools Interoperability (LTI) Framework.

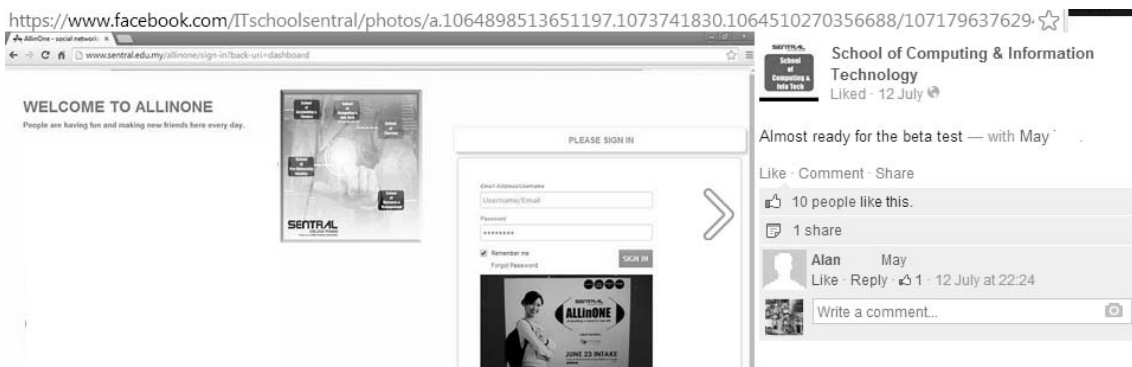


Figure 6. 'AllinOne' platform was recently open for beta testing.

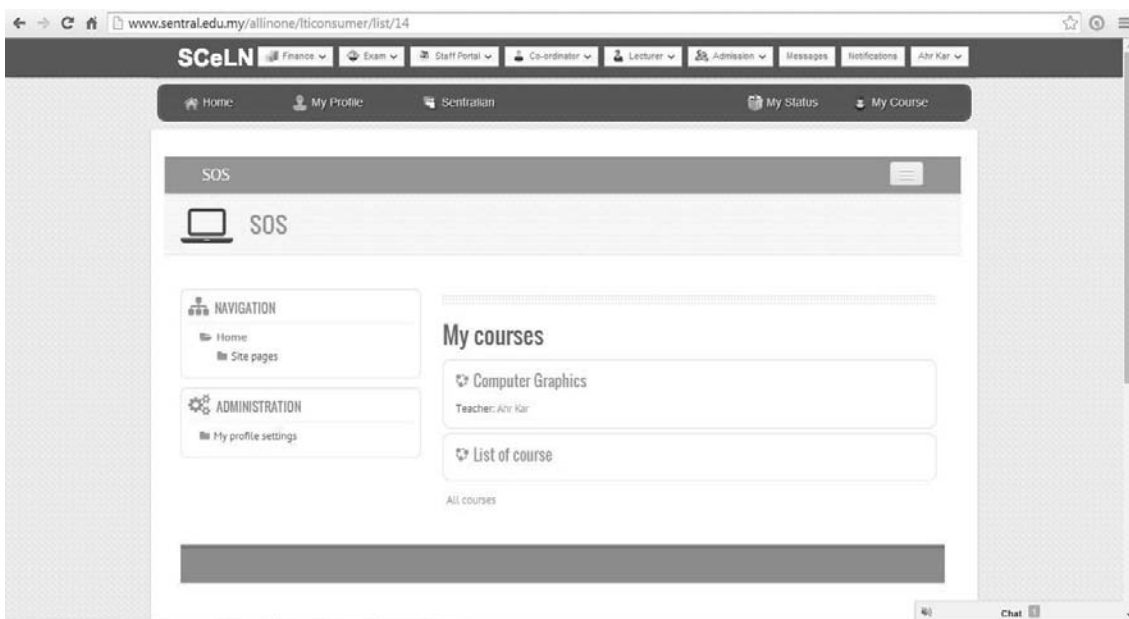
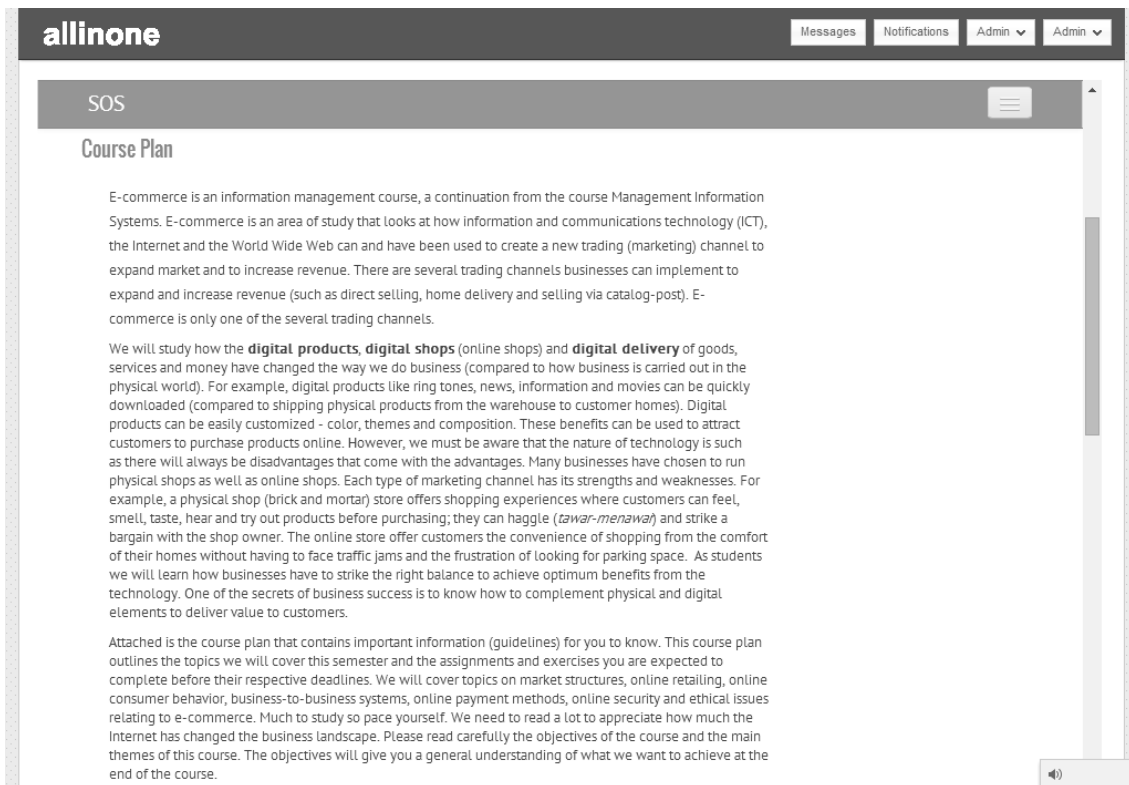


Figure 7. Screenshot of Moodle has been embedded into the system.

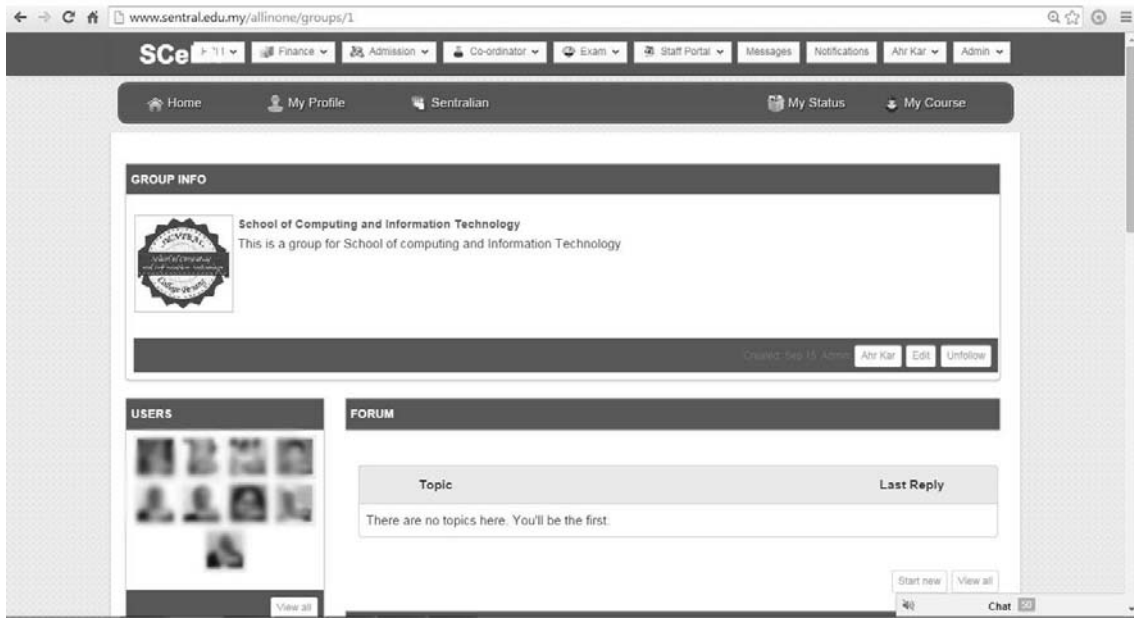


Figure 8. Social Networking platform (Group and Forum).

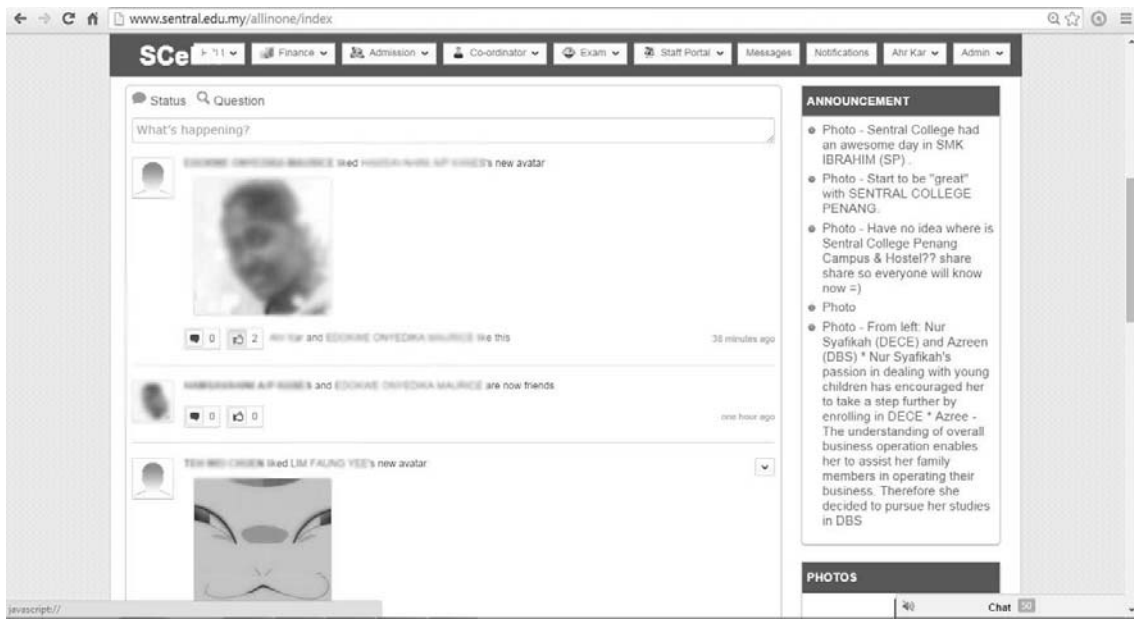


Figure 9. Linking with Facebook (CSS module).

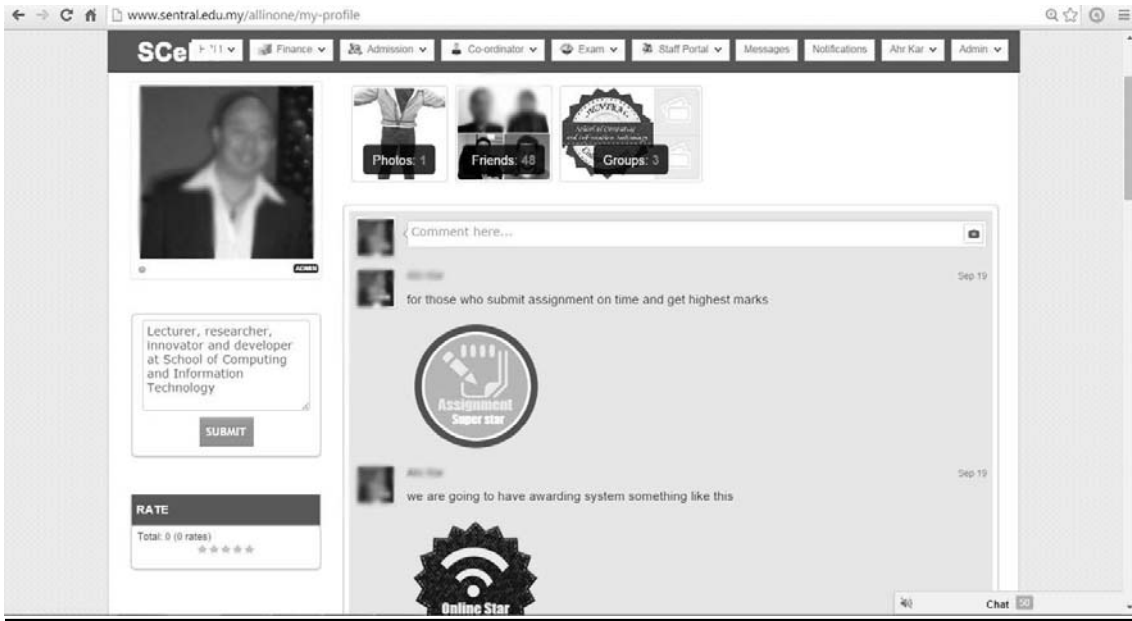


Figure 10. New awarding badges just to create stickiness into the system.

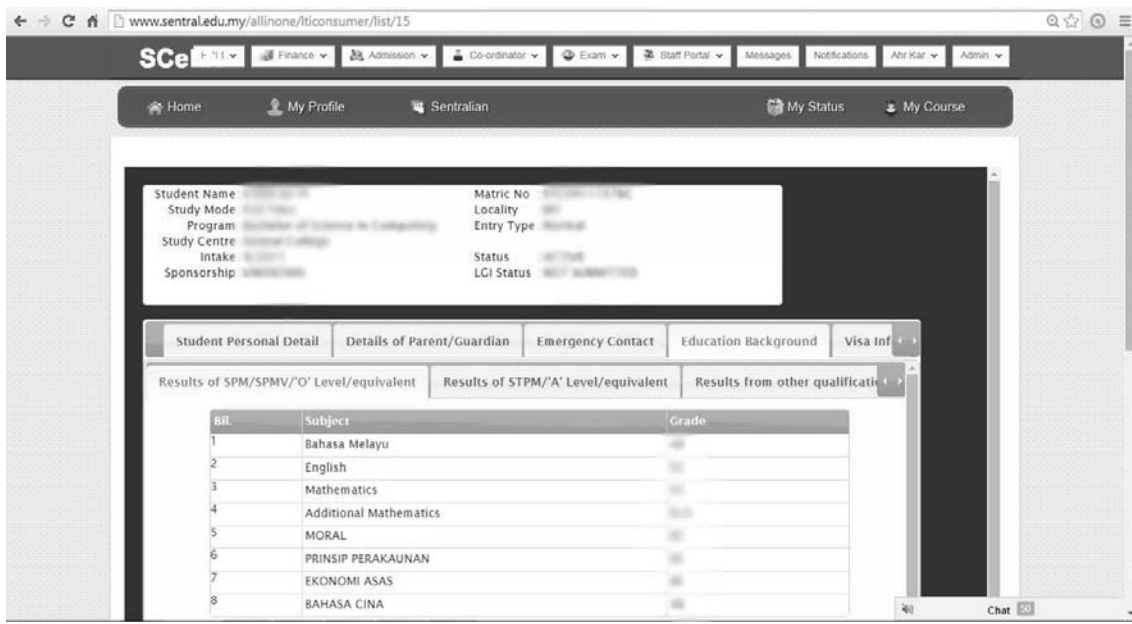


Figure 11. Integrating with SIS including sample student results.

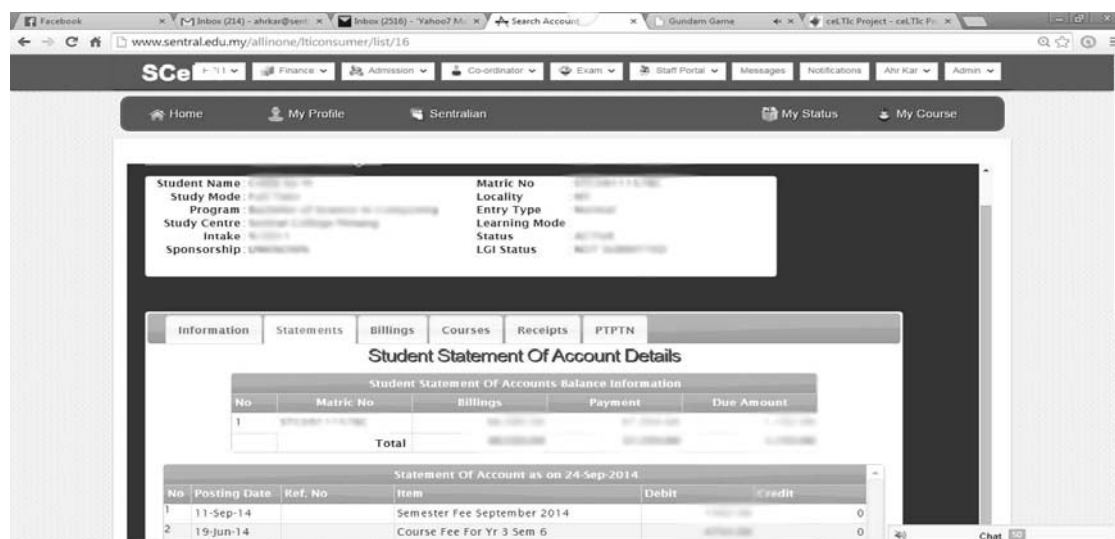


Figure 12. Integrating with SMS (Finance Module).

### Monitoring Usability of Digital Tools including Evaluating Learners' Attitudes

To optimize the usability of digital tools through Google Apps of the "OneforAll" blended learning system starting June, a survey on 'Attitudes towards technology' was piloted involving students and teacher delegates from SEAMEO member countries through purposive sampling techniques during the 9<sup>th</sup> 'Search for SEAMEO Young Scientists' (SSYS) congress from 4 to 7 March 2014 [<http://www.recsam.edu.my/ssys/>].

**Evaluating learners' attitudes towards use of technology.** SSYS is a biennially held event that was also conducted using blended learning platforms, i.e. off-line or F2F (in the form of congress and exhibition held at RECSAM) and on-line (e.g. through Facebook social networking activities, also science forum on 7/3 when the delivery of forum presentation by one speaker from Kuala Lumpur was conducted via webinar and skype that was also broadcasted to participants in SEAMEO and beyond).

**Validating instrument through pilot study prior to survey.** A survey questionnaire (both available in off-/on-line versions) was distributed to elicit the understanding of SSYS delegates and on-line respondents about the concepts of 'Interactive technology: Its functions and challenges to promote values-based awareness, enhance thinking and life skills for sustainable living'. This survey with a total of 36 items was developed to measure 'Attitudes Towards Use of Technology to Enhance Sustainable Living' (ATUTESL) (Ng, Chockalingam & Thien, 2014). ATUTESL was first piloted in February, one month before it was administered during the 9<sup>th</sup> SSYS with the congress theme 'Disaster Risk Reduction for Sustainable Development'. An event page was created in Facebook (FB) to invite participation via video conferencing tools [[https://engageteachers.adobeconnect.com/\\_a816142044/r22693258/](https://engageteachers.adobeconnect.com/_a816142044/r22693258/)]. ATUTESL was refined into 25 items after pilot study to elicit respondents' perceived level of perception on use of digital tools related to the aspects of Resource usefulness (RU)(5 items), Responsive feedback (RF)(5 items), Interface features (IF)(5 items), User friendliness (UF)(5 items) and User gratification (UG)(5 items). It was constructed with the 4-point Likert scale format, indicating 1=Strongly Disagree, 2= Disagree, 3=Agree and 4=Strongly Agree on the level of perception. Data analysis using Rasch model revealed that the item reliability is 0.72. The results



indicated some items fail to lie within the acceptable range of 0.4 to 1.6 recommended by Linacre and Wright (1994). Hence, the wordings of Item RU1, RU2, RU3, RF4, RF5, RF6 were refined prior to administering ATUTESL in the 9<sup>th</sup> SSYS congress.

**Analysing respondents' attitude towards use of technology.** Apart from validating the instrument with statistical analysis, ATUTESL was also analyzed qualitatively with some verbatim responses extracted from the 'Comments' column of open-ended responses. The qualitative analysis revealed that most of the interviewees expressed their positive attitude towards blended learning digital tools especially 'the needs to have online library' (refer also the above Figure 3) that could better facilitate their learning in the countries of different culture. Generally the interviewees (e.g. 3 teachers and 6 student delegates as reported below) responded that they used e-/m-learning tools quite a lot as shown in the following verbatim responses:

*We use e-learning tools e.g. Internet (x3), and m-learning tools e.g. smart phone (x3), netbook and i-pad (x3) very often; e-forum (x2), skype, tablet (x3), netbook (x2), webinar (x2), e-book (x2), laptop (x2) quite a lot; but not so much for e-forum and skype (x2), e-book and laptop... We hope to received info. from online libraries...*

(Filipino Female, Male student 1 & 2; Cambodian Male responses on 7<sup>th</sup> March 2014)

*E-learning tools e.g. Internet, e-forum, webinar, skype, e-book and m-learning tool such as smart phone, tablet labtop and i-pad are used very often; netbook also quite a lot.*

(Female Singaporean student, survey open-ended responses on 7<sup>th</sup> March 2014)

The interviewees also expressed positive attitude towards blended learning digital tools to enhance awareness and promote sustainable living as reflected in these excerpts:

*The technology tools help teachers to design learning objects for me in any learning, environmental friendly. ...technology enriches my thinking skills to lead a sustainable life. Online feedback can be provided by the digital tools for teaching and learning process. The comprehensive features of interactive technology tools stimulate me to create new knowledge. E-learning tools can also be used to download the materials, and update the information about various cross-cultural knowledge rapidly.*

(Female Filipino teacher, survey open-ended responses on 7<sup>th</sup> March 2014)

*E-learning tools can be used to keep in touch with far-away friends more easily and frequently. Technological tools are part and parcel of modern living. Thus incorporating sustainable living feature is necessary. Technological tools become a necessity in everyday life. Thus every effort has to be undertaken to incorporate sustainable living feature into it, including digital libraries to learn from other culture*

(Male Chinese/Malaysian teachers, survey open-ended responses on 7<sup>th</sup> March 2014)

*...Internet enhances my sustainable living,... e-forum helps me enhance my skills in reasoning, helps me socialize, mostly pocket e-book stories are only posted there, so much learning...Smart phone and tablet allow the connection to all learning tools.... Netbook allows some connection to some learning tools. Laptop allows limited connection to some learning tools. But i-pad greatly allows connection to all learning tools. Latest info. can also be shared through regular conferences.*

(Female Filipino, Malaysian students, survey open-ended responses on 7<sup>th</sup> March 2014)

**Monitoring usability of digital tools.** Feedback were received from FB respondents (e.g. Figure 3 and Figure 6) and from SSYS delegates especially about the needs for 'digital libraries and cross-cultural understanding'. Then the Koha [Integrated Library System (ILS)] and Google Apps (Gmail, Google calendar, Google drive) that are the common features of blended learning platforms for all were developed and piloted among 2 and 18 samples [participants of Science across the World (SAW) curriculum writing workshop] in both collaborative institutions

respectively. Feedback of how local wisdoms of the underserved SEAMEO countries could be facilitated via curriculum topic ‘*Conservation and wise use of resources*’ is translated in curriculum prepared by one Malaysian expert in the workshop (Figure 13).

https://docs.google.com/document/d/193tkwkJIGVvKXD2hffwDBSGGmO1BYt2mMSS2Q5Xr5i1k/edit

(BorderlessSAWcurrtopic)(3)(ConservationResources)(edited050614) ☆

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*Enhancing Lifelong Borderless Learning: Interdisciplinary and cross-cultural studies for SEAMEO Borderless School*

A **Borderless School** is the school that prepares students to become global players who are enterprising, creative, innovative, equipped with 21st century skills, and lifelong learners in cross-cultural learning environment. It is an area identified for the aspiring vision of Golden SEAMEO. The learners from diverse background are expected to be actively involved in sharing resources through blended mode learning environment rich with easy access information mainly from Open Educational Resources (OERs) including interdisciplinary and cross-curricular studies. Three essential skills to be developed from early education include thinking, technology and life (work/entrepreneurial and survival) skills. The four main areas of curricula for Borderless School are: (1) Telecare; (2) DR RED and climate awareness; (3) Conservation and wise use of resources; and (4) SE4ALL. The units that are developed under these four main areas will not only serve as basic education suitable for students between 10 to 18 years old, but also can be adapted with suggested enrichment activities to promote lifelong borderless learning through challenging Project-based Activities (PBA) and Problem-based Learning (PBL) incorporating ‘Technology-enhanced Learning’ (TEL) including various blended learning activities among stakeholders in the Community of Practice (CoP).

‘**Conservation and wise use of resources**’ is the curriculum topic aims at providing awareness of current global issues related to conservation and educating the public the importance of using natural resources wisely for sustainable living. Three units that are

Information Section	www.eol.org							
Some Common Plants	eol shows pictures and scientific details			(not cultivated)				
English	Scientific Name (In italic with link to pictures)	Brunei Darussalam	Cambodia	Germany	Indonesia	Japan	Lao PDR	Malaysia
Angsana	<i>Pterocarpus indicus</i>	Angsana			Angsana	Indo shitan		Angsana
Bamboo	<i>Bambusa sp</i>	Buluh	Tra Phang	(Bambus)	Bambu	Take	Mai pong	Buluh
Banana	<i>Musa sp</i>	Pisang	Chek	(Banane)	Pisang	Banana	Kouay	Pisang
Bird's Nest	<i>Asplenium nidu</i>	Sarang burung			Sarang burung	Yasei-Minjin	Hongnok	Sarang burung
Breadfruit	<i>Artocarpus sp</i>	Sukun			Sukun	Pan-no-ki	Sukun	Kapiak
Bougainville	<i>Bougainvillea sp</i>	Bunga kertas			Bunga kertas	Bugenbiria	Dok chia	Kamlang kertas
Chili	<i>Capsicum sp</i>	Lada	Motes	(Chili)	Cabe	Chiri	Mak phet	Lada

**Part 3 Prioritizing your plants**

It can be said that certain plants are probably more important than others when it comes to the survival of mankind. In this section, students will be asked to critically evaluate which plants are deemed critical given an adverse situation such as lack of space and possibly other resources to grow such as the following scenario given to them:

FOR STUDENT PAGE

SCENARIO

Given limited land and other resources, you have been asked to choose **ONLY** five plants that you consider crucial and will contribute to the survival of mankind. Indicate which five that you will choose and provide justification for your choices.

	Chosen plant	Plant Characteristic	Why choose? (Justification)
1			
2			

**Figure 13.** Template prepared in Google.doc for curriculum topic (3) Conservation and wise use of resources [URL: <https://docs.google.com/document/d/193tkwkJIGVvKXD2hffwDBSGGmO1BYt2mMSS2Q5Xr5i1k/edit>]. The Excel template prepared in Google.doc on topic ‘*Common plants with scientific terminologies*’ that are commonly used in the SEAMEO countries, the activity suggested for unit ‘*Conservation of plants*’ to promote local wisdom. The link is accessible from [https://docs.google.com/spreadsheets/d/16WXz83-pADKshkqonUuVvNikVZMN2\\_eV3aSaGdYcsSvA/edit?usp=sharing](https://docs.google.com/spreadsheets/d/16WXz83-pADKshkqonUuVvNikVZMN2_eV3aSaGdYcsSvA/edit?usp=sharing)

## Conclusion

This study explores the initiatives of two institutions to design hybrid system for ODL.

### Challenges, Limitations and Suggestions for Further R&D Activities

Though the authors had successfully implemented the hybrid system with evidences of its usability through reports and feedback, upon reflections, more challenges should be taken to include new features of digital tools to enhance the creativity of participants with R&D evidence on its impact. The following are suggestions for improvement:

- Teachers should be empowered to create interactive lessons that may further enhance students’ creativity using graphic organizers and other digital tool such as ‘Learning Activities Management Systems’ (LAMS).
- ‘OneforAll’ could incorporate video conferencing for synchronous communication.

### Research Implications and Opportunities of Lifelong Learning for Underserved

The analysis of data from ATUTESL surveys and interviews revealed the research

implications that are worth pondering. All the interviewees, i.e. (1) three Gen X (in-service teachers who used the 'OneforAll' platform); (2) three Gen X and six Gen Y (SSYS delegates responded to survey) showed positive attitudes towards digital tools with more suggestions to promote awareness for sustainable living via online libraries.

This implies that more efforts should be made to leverage on the 'OneforAll' platform and optimize the use of blended learning tools towards Education for All (EFA) in order to promote essential skills [e.g. thinking, technology, life (work/entrepreneurial and survival) skills] required for lifelong borderless learning. For example, in the activity 'Prioritizing your plants' (Figure 13 Part 3), students are given a scenario in the underserved country with scarcity of resources. They were required to exercise their critical and logical thinking skills 'why they choose the top 5 prioritized plants that will contribute to the survival of mankind with justification of the choices they made'.

### Acknowledgement

The authors wish to acknowledge the management and all staff of Sentral College and RECSAM; all stakeholders and educational partners who have contributed to the success of this study.

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**List of abbreviations**

	<b>Abbreviation</b>	<b>Meaning</b>
1	ATUTESL	Attitudes Towards Use of Technology to Enhance Sustainable Living
2	BL	Blended learning
3	CoP	Community of Practice
4	EFA	Education for All
5	ESD	Education for Sustainable Development
6	F2F	Face-to-face
7	FB	Facebook
8	Gen Y	Generation Y
9	IF	Interface features
10	ILS	Integrated Library System
11	IT	Information Technology
12	L3	Lifelong learning
13	LAMS	Learning Activities Management Systems
14	LMS	Learning Management System
15	LTI	Learning Tools Interoperability
16	MKO	More Knowledgeable Others
17	ODL	Open and Distant Learning
18	OER	Open Educational Resources
19	R&D	Research and Development
20	RECSAM	Regional Centre for Education in Science and Mathematics
21	RF	Responsive feedback
22	RU	Resource Usefulness
23	SAW	Science across the World
24	SEAMEO	Southeast Asian Ministers of Education Organization
25	SMS&SIS	Student Management and Information System
26	SSYS	Search for SEAMEO Young Scientists
27	UF	User friendliness
28	UG	User gratification

## **Using Web 2.0 technologies with special needs students in distance education**

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### **Abstract**

E-Learning and Web 2.0 movements have changed the methodologies of distance educators/instructors and learning styles of students with special needs. Total population of Pakistan is about 200 million and 10% of the total population is with special needs (Majeed, 2012). Few hundred educational institutions up to K-12 are available for this population. Also formal education system not able to cope the special needs of disabled students, therefore drop out figure is alarming. In Pakistan only one institution i.e. Allama Iqbal Open University welcomes special need students from school education to graduate level. The results are encouraging because the ODL system is much flexible and accommodative for the students with special needs. The students with special needs mostly used cell phone and internet facility for daily life communication and for their educational needs. Every year more than 500 students enrolled in different programs of AIOU and mostly in Department of Special Education. The department developed support system in-line with online education/e-learning and Web 2.0 technologies for the teaching-learning process of these special students. A study was conducted to check/measure the implications of Web 2.0 technologies for the education of special need students. An experimental study was carried out with experimental and control groups, total 40 students with special need i.e. hearing impairment, visually impairment, social/emotional disturbed and physically handicapped were the sample of the study. A pre-test was conducted before the three months treatment and it was found that they are mostly rely on text books, teachers and colleagues/friends. After treatment post-test was also conducted and the difference between pre and post test was very positive in the way that they were more independent and learnt a lot without the help of others. They were directly in-touch with their teachers, class fellows, experts and community. The special need students recommended web 2.0 technologies should be part of all the programs of AIOU that maximum number of special need students and normal students get benefit by the use of these technologies.

**Key Words:** Web 2.0, Special Need Students, Distance Education

## **Background/Introduction:**

The word special is always considerable for all but when it comes with person then it means much more. Special persons are always in special attention of society and state for their welfare and rehabilitation. All over the world responsibility of every citizen is state responsibility and there is no discrimination in citizen, either white or black, rich or poor, literate or illiterate, urban or rural and able or disabled. Persons with disabilities and their families struggled a lot for their rights. The situation of realization is much different if we go back to history pages, they were idiots, dull, dumb, ignored, neglected and unimportant part of the society. By the struggle then became first titled with term of generalization, normal, special, mentally challenged and now differently able persons. This journey will not stop until we so called normal people have no discrimination between us and them. All over the world state is responsible to provide the medical, social, educational and vocational education that they compete with normal students/people. Special Education is a dynamic enterprise and a field of studies within the discipline of education. Basically designed to meet the educational requirements of the special need children. Special education is an education on individualized bases because in it we trying to meet the strengths of special need students by positive and constructive planning. In this planning we use special type of materials, techniques/strategies and services by which these students can experience social respect. This planning may include special materials, techniques, and services as a result of which the special need students can experience social respect and live an independently. In Islam and universal all children in this world are equal and they have the right of education like normal children to live independently without burden to others. All over the world every state by law providing education, care and improved status to special need people. Education and medical facilities/provisions are top in the state responsibilities. In world there is two way system of education for the special need children one is special education in special schools and second is inclusive education. The formal system of education in general not considering or including special need children in its education philosophy but Open and Distance Learning system is much flexible as it is for normal students/children (Wartella, 2007). The researcher wrote number of articles/papers, how special need student can be part of ODL system and there are very few studies have been conducted in this area. There is a need of ODL system to conduct more studies how they can include special need students in ODL. There is a paradigm shift in ODL too means shifting from traditional correspondence to online education. In developing countries still old system of ODL is in practice therefore very few special need students are part of ODL system. As the new trend of online/eLearning is part of ODL so special need students can be accommodating in a better way and their special needs can be addressed or met accordingly. Allama Iqbal Open University (AIOU) is a successful example for Open Universities in accommodating or including special need students in Open and Distance Learning Education, though AIOU is on old correspondence system but hybrid model of online learning/education is part of teaching-learning process so special need students have motivated to get higher education in AIOU. The department of special education of AIOU is accommodating number of special need students in postgraduate programs. Mostly students are connected with the department, administration, tutors and class fellows through Information Communication Technology 'ICT' (Valentine, 2005, 2010). Hearing Impaired students are connected with tutors through text messages, emails and

social web media like blogs (Akbulut, 2007), Forums, Youtube, Chat, RSS Feeds, Web Conferencing, Skype, Webinar, Twitter, and Facebook. They share their experience with tutors and class fellows. The tutors answer their questions and queries through web 2.0 technology. Sometime they conduct formal lecture/session through Skype and Video chat blogs.

In online or eLearning is too popular that online programs or Open Distance Education programs will not be successful without it. Actually it includes most in use number of Web-based tools. The Soloman & Schrum (2007) noted that Web 2.0 tools have deep and insightful results on schools education and learning of learners. Also creativity, collaboration and communication can be promoted through Web 2.0 tools. Presentations of group work or group assignments by the special need students are helpful in developing critical thinking and organizational skills. Open and Distance Tutors can take advantage of Web 2.0 tools features in the distance education or online education to enhance the learning experiences and to develop the broader worldview. Different similar tools used by special need students enhance or promote reasoning and analysis, also for in-depth and detailed information. Special Need Students can only be competing with the 21<sup>st</sup> century needs by using such tools and methods like M-Learning or MOOCs. Web 2.0 is not fixed with internet it is also business 2.0, medicine 2.0, journalism 2.0, sports, 2.0 and even fashion 2.0.

Extensive use and recognition of internet characteristics with social activity (Raine, 2011) are not new in this century, actually Erickson in 1996 commented 'slow transformation'. But the use of internet and social activity it is not slow it is much faster as we think 3-40 years back. Growing excitement within education or education community about 2.0 is just 5-10 years history and now it is important part of teaching-learning process. We are using Web 2.0 in social networking, wikis, virtual societies, folksonomies, blogging, multiplayer, online gaming and mash ups.

Internet tools forms and functions though are different but application of these different types of tools supporting the internet based interaction between and within groups of students which we call social software or Web 2.0 tools and services.

Educationists found and realized that creativity, collaboration and communication can be developed or enhanced by the use of these technologies or tools that's why the maximum use of these tools is in Open and Distance Learning system. Special need students in ODL system are having benefits from Web 2.0, especially hearing impaired and blind students.

The Allama Iqbal Open University is among the pioneer universities using Web 2.0 for the education of special need students. Every year more than 500 students enrolled in different programs and they are using facebook, blogs, mobile texting, video conferencing, blogs, Youtube and many more. The department of special education first initiated use of internet and Web 2.0 for the education of special need students and gradually other departments were encouraged to have more and more special need students. The AIOU have the policy of free education for the special need students, also assessment is view of their limitations mean flexible assessment. In AIOU students are enrolled from far flung and remote areas and mobile is part of their life so special need students using it a lot not for learning but also for social networking. They are in-touch with the tutors, university administration and class fellows. First hand and quick

information, sharing of study material, discussion and much more is possible with the Web 2.0 tools.

### **Statement of the Problem:**

The ICT is helpful in teaching-learning process of normal students learning and eLearning is one of the shapes of ICT. In eLearning/online learning number of technologies and tools are in use to improve or enhance the learning process of students. The Web 2.0 Technologies and tools are helpful to improve the interaction between students-student, student-tutor and student-content. The current study was designed to check the impact of Web 2.0 technology and tools to accommodate the special need students in distance education.

### **Objectives of the study:**

The objectives of the study were:

- To find out the demographical characteristics of special need students in Open Distance Learning system for the use of Web 2.0 technologies and tools.
- To facilitate collaboration and provide ease of use for special need student satisfaction.
- To check the impact of implications of Web 2.0 technologies and tools to improve the teaching-learning process in ODL system.
- To explore the possibilities to accommodate or include the special need students distance education
- To find out the problems, challenges and issues in the use of Web 2.0 technologies and tools for the education of special need students in ODL system.
- To collect the opinion and suggestions/recommendations of special need students studying in ODL system and their tutors.

### **Significance of the study:**

The researches and social media designer defined the Web 2.0 as tool for “Read/Write Web.” In early history of internet it was used for searching of information mean "Read Only Web." With the change or fast change in Internet World and development of website allow the people to write and writing was for collaboration, experience sharing through different sources by the use of number of web tools. The most common are Wikipedia, Blogs, Forums and Facebook.

Educators face many challenges now a days and web 2.0 is one of the option for enhancing learning process of students with special needs. In 21<sup>st</sup> century learners or students live in a global, knowledge-based economy, therefore he/she must master vital 21st century skills like ICT/Online Education/eLearning. Web2.0 technology helps them to communicate effectively like a hearing impaired student can communicate



easily and effectively through text messaging, blogs chat, video conferencing and face book. They can collaborate with each other with the help of these tools. Web 2.0 is also helpful to think creativity and critically and gather, analyze, and synthesize information for their understanding or learning.

The current study helped the distance education instructional designer, online course developer, tutors, course writers and special students themselves to enhance their interaction, collaboration with each other, tutors and ODL content/material. This small scale experimental study highlighted the importance of provision of ICT, Web 2.0 and eLearning/online for the special need students. The AIOU is the only option for the special need students to get higher education in Pakistan. The study will be helpful to other distance education institutions in accommodating needs of special students according to their level and nature of disability. The study will not only be helpful to engage better the special need students in teaching-learning process but it will be much helpful for the normal students in ODL system. Now a days instructional designers are including web 2.0 technologies and tools in all online programs, therefore all ODL institutions must include web 2.0 in their programs/courses and provide the chance or opportunity to special need students to be part of ODL system.

## **Methodology:**

The study was experimental in nature, in which pre-test, treatment, and post test was applied to check the impact implications of Web 2.0 technologies and tools for the enhancement of special students' learning. In American Heritage Dictionary of the English Language (2011) experiment is as "A test under controlled conditions that is made to demonstrate a known truth, to examine the validity of a hypothesis, or to determine the efficacy of something previously untried." In experiment control group is most important for the researcher so a control and experimental group was created for the study. As said study was experimental in nature, therefore population of the study was all the Special Students enrolled in AIOU's post graduate programs. The sample of the students was 40 (Hearing Impaired, Visually Impaired, Mentally Retarded, Physically Handicapped), 20 in control group and 20 in experimental group. The sample was selected through random sampling technique, before sampling characteristics were ensures same in each disability category. A pre-test was conducted before the treatment. In pre-test researcher checked their knowledge of ICT and skills. The researcher also checked the impact of traditional correspondence teaching on special students learning and satisfaction. The pre-test also gave picture of interactions level of student-student, student-tutor and student-content/reading material. After pre-test researcher with the help of online tutors of AIOU provided three months treatment i.e. they taught the special students with Web 2.0 technologies tools. They applied or used the tools and resources, i) connecting (chatting, communicating, networking), ii) curation (collecting, storage, sharing), iii) collaboration (creative sharing, discussion, polling), iv) creative thinking (brainstorming, writing/drawing), v) presentation and publishing (presentations' tools), vi) multimedia (video, sound, photos), vii) music (listening, creating and sharing), viii) browsers (reader friendly discoveries) and ix) classroom teaching (academic writing), and x) using computers/laptops/iPads in the classroom or studies. The tutors used all the technologies or tools in shape of blogs, forums, Youtube, chat, video

conferencing, RSS, Feeds, facebook, twitter, text messaging and web searching. Post test was conducted after three months treatment on both control and experimental group. The researcher checked the learning and satisfaction level of special students. A test of general knowledge was conducted and difference between pre and post test was checked. The results indicated that the special students in the experimental group treated with Web 2.0 technologies and tools scored significantly higher on their test than the students in the traditional correspondence teaching group i.e. control group. Special students were more independent and learnt a lot with the help of Web 2.0 technologies and tools.

## Results and Discussions:

As the research was experimental in nature, therefore researcher first selected the sample by simple random sampling technique:

### Sampling Framework

Total Sample: 40 Special students

Experimental/treatment Group: 20 Special Students

Control Group: 20 Special Students

The researcher used t-test (or student's t-test) for data analysis because clear picture of two sets measurements is possible by the t-test. It also to check the two sets of measures and significantly different or not. Actually t-test presumes a normal distribution (parametric data) and underlying variance are equal. It was used because researcher used the random sampling technique and measured two sets (control and experimental) and compare these too. The researcher used Matched Pair t-test because pre and post test were compared or matched. The difference between pre and post test gave picture of significance.

The value of t calculated by SPSS. The actual calculation for two groups is:

$$t = \frac{\text{experimental effect / variability}}{\text{difference between group means / standard error of difference between group means}}$$

A pre-test of Pakistan Studies was conducted and results were as follows:

N=40

Groups	Test 1 (Pre-test)
Experimental Group	= 1.7
Control Group	= 1.9

The researcher with help of tutors applied or used Web 2.0 technologies and tools to check the implications and satisfaction level of special students. After three months treatment post-test was conducted and checked the impact:

N=40

Groups	Test 2 (Post-test)
Experimental Group	= 8.3 *
Control Group	= 2.1

Difference between pre and post test was:

N=40

Groups	Test 1 (Pre-test)	Test 2 (Post-test)
Experimental Group	= 1.7	= 8.3 *
Control Group	= 1.9	= 2.1

\*  $p < .05$

The mean of experimental group was significantly higher than the control group ( $t = \dots, p < .05$ ) and it reflected the implications of Web 2.0 technologies and tools in online as well as in traditional correspondence courses of ODL have strong or significant impact on special students learning.

### Conclusions:

The study was experiment in nature and researcher checked the impact of Web 2.0 technology on the learning of special need students. The special need students have skills potential to learn, tutor in ODL or eLearning accommodate or assist them through effective teaching methods, ICT, sources and web based tools. The difference between pre and post test reflected clearly that Web 2.0 tools or technologies are much helpful to enhance the learning of these students. Social activities like chatting or communicating networking in online or even in traditional open distance learning system helped the hearing impaired and visually impaired students. The communication was effective and helpful for them to discuss number of academic matters. During research it was also found that their discussion, arguing or acceptance is enhance through Web 2.0 tools for collaboration. The tutors practiced them to write or plan the academic things as they see and perceived. This strategy showed positive results and tutors received excellent creative thinking plans or write-ups from special need students. These were based on their own perception, experience and knowledge. As special need students re much attractive and love to multimedia (Video, photos) and music, the use of these tools also reflected positive results. Hearing Impaired and Visually Impaired students spent much time on browsing to locate information to solve their course questions or assignments. It was found that learning of special need students with IPads, Laptops and computers (experimental group) had significance difference between their pre and post test. The researcher recommended that ODL or eLearning programs must include Web 2.0

tools/technologies in teaching learning process of special need students. The use of Web 2.0 tools not only helpful to enhance the teaching-learning process in ODL system but also to able them lives independently and respectfully in this world.

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# The development of an online course on leadership development and change management for nurse executives in ASEAN countries

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## Abstract

In the coming year 2015, ASEAN member countries will combine into ASEAN Community, building a regional society for their population to live altogether in a kinship manner in the same family. Nursing profession is one of the seven key services which have been accelerated by ASEAN Community to combine together toward internationally top of the global quality service. This climate has inspired visionary researchers to develop short course training on “Leadership Development and Change Management for Nurse Executives in ASEAN Countries (LCM Project)”.

The purposes of this research and development (R&D) were: (1) to develop the online course entitled “Leadership Development and Change Management for Nurse Executives in ASEAN Countries”, and (2) to evaluate the online course. The training course was divided into 2 phases: *Phase 1, online course* that composed of 10 modules relating to “leadership development and change management” and *Phase 2, face-to-face intensive seminar* that emphasized upon special lecture, group interaction for network development and nursing administration innovation development. This paper will only present online course activities.

74 participants were recruited by purposive sampling from nurse executives and registered nurses in five ASEAN member countries namely Thailand, Malaysia, Myanmar, Lao PDR and Vietnam. LCM website (<http://www.stou.ac.th/lcm>) was created for supporting participants’ learning, sharing their knowledge and valuable experiences. All participants registered to attend the online course and conducted three activities as follows. *Firstly*, participants learned by attending online modules, learning one module weekly and then provided reflection on each module under supervision of LCM team as facilitator. *Secondly*, participants jointly shared their knowledge gained from their learning as well as experiences together in the “Knowledge Sharing” forum. *Lastly*, each participant developed a mini innovative project or creative work task based on the project component. Later on, the participants came to face to face intensive seminar upon completion of three activities for the second phase.

The research findings were as follows. (1) The online course was developed by a course team, comprised LCM project team, resource persons and participants views that based on Monterey Institute for Technology and Education. (2) The online course was

evaluated by those participants. It was found most participants were satisfied with the course. The online course was also appropriate to utilize for nurse development in ASEAN countries. However, from learning online, following problems were found in modules accessibility i.e. poor local infrastructure technology, self-disciplined of learners, limitation of language and culture in communication which will be taken for further discussion.

**Keywords:** online course, Leadership development, change management, nurses, ASEAN countries

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### **Introduction:**

In the coming year 2015, ASEAN member countries will combine into ASEAN Community, building a regional society for their population that live altogether in a kinship manner in the same family. With the purpose to promote favorable understanding among countries in this region, maintaining peace, security and political stability, economic prosperity, social and cultural development and well-being on the basis on of equity and common benefit of the 10 member countries namely Thailand, Indonesia, Malaysia, Philippines, Singapore, Brunei Darussalam, Cambodia, Lao PDR and Vietnam.

For training development, cooperation promotion including interaction promotion between personnel and professionals in the region are considered significant cooperation leading to achieve ASEAN Community's goals of awareness for caring and well-being of the regional community. As a significant part of health service profession, nursing profession, one of the seven key services has been accelerated by ASEAN Community to combine together toward internationally top among the global quality service. In this regard, an agreement on ASEAN Mutual Recognition Arrangement on Nursing Services (ASEAN MRA) was reached in principle that nurses who meet required qualifications are eligible to register or apply for nurse license to work in other ASEAN countries under law and regulations in those countries (Association of Southeast Asian Nations, 2014). Therefore, nursing personnel development is necessary in ASEAN region.

Under current changes in the context of knowledge-based society prior to entering ASEAN Community, preparation to cope with international market competition, understanding ASEAN Community, particularly on economic, social and cultural aspect is crucial for further progress or survival of health and nursing organization (Giri,K.et al., 2012; ASEAN – ANU Migration Research Team, 2005). Every nurse, especially nurse executives must try to understand and keep them up with continued learning so they can handle the above-mentioned changes and then make use of those changes for their organization and professional benefit by expressing leadership potential which is the core competency of nurse executives whose self-development is truly needed.

Being fully aware the significance of nursing personnel development, as one of Sukhothai Thammathirat Open University (STOU)'s schools that employ distance education including technological instructional media via internet i.e. e-learning, webcast and web-board, School of Nursing therefore, organized a pilot online training course entitled "leadership development and change management for Nurse Executives in ASEAN Countries. To overcome obstacles such as geographic and time, distance education (DE) mode thus was used in this study to train ASEAN's nurses for practice.

According to the online course, O'Neil, Fisher & Newbold; and Mancuso, (2004; 2009) pointed out that DE can be totally online or partially online (blended learning) and can be synchronous (real time) or asynchronous (delayed). Furthermore, Wilson and Lowry (2000) found that the Webs are providing access to rich information, encouraging meaningful interactions, and bringing people together as well. Nursing personnel development by distance training, therefore, will allow anyone in the community to learn from distance education pedagogy based on connectivism in response to needs of each learner at a large number regardless of time and place.

Learning theories are concerned with the actual process of learning, not with the value of what is being learned (Siemens, 2005). In a networked world, the very manner of information that we acquire is worth exploring. Siemens advances a theory of learning that is consistent with the needs of the twenty first century. He asserted that learning and work related activities are no longer separate. In many situations, they are the same. Therefore, based on Siemens theory, developing of the online course must be integrated theory into practice and utilized "knowledge sharing" forum through online as a strategy to connect people together.

### **Literature reviews:**

The online course development that based on connectivism, had been conducted in the form of research and development aiming to leadership development and change management for nurse executives in ASEAN countries as well as building ASEAN nurse executives' network thereafter. According to George Siemens (2005), principles of connectivism are for examples as below.

"Learning is a process of connecting specialized modes or information sources. Nurturing and maintaining connections is needed to facilitate continual learning. Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities."

Siemens further indicated that connectivism also addresses the challenges that many corporations face in knowledge management activities. Furthermore, a principle of connectivism is that:

*"Decision-making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a*



*right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision.” Therefore in this study design, researchers focused on “how to learn” more than “what to learn”.*

Realizingly, nurses from various countries in ASEAN community may require different approaches due to ability of access to technology, language and cultural communication. Speed of “idea to implementation” was also improved in a systematic review of learning. Online learning environment was designed. After completion of the online course, all attending participants were asked to provide course evaluation consequently.

The decision to choose an evaluation model, suggested by Madaus & Kellaghan (2000) that depends on a few important factors such as the evaluation questions, the issues that must be addressed with the available resources. In this research, the chosen course evaluation was based on Monterey Institute for Technology and Education (MITE 2010). The MITE online course evaluation consists of seven components: (1) Course Developer and Distribution Models, (2) Scope and Scholarship, (3) User Interface, (4) Course Features and Media Values, (5) Assessments and Support Materials, (6) Communication Tools and Interaction, and (7) Technology Requirements.

Evaluation research asserted by Siew Hong (2007), it does not aim to discover new knowledge like other researches. It aims to study the effectiveness with which existing knowledge is used to inform and guide practical action to help improve the quality of a programme or course. The evaluation also aims to detect strengths and weaknesses in the course processes, with a view to make recommendations for altering the structure, or adjusting the implementation of the course. In this research, the evaluation aims to investigate the participants’ views who had attended the online course with the specific intention of weighing up their strengths or weaknesses and providing feedback about how things might be improved for further developing an online training course in the future.

### **Objectives:**

The purposes of this research and development (R&D) were:

1. To develop the online course entitled “Leadership Development and Change Management for Nurse Executives in ASEAN Countries”.
2. To evaluate the online course implementation.

### **Methodology:**

The training course was divided into 2 phases:

*Phase 1 Online Course* that composed of 10 content modules focusing on “leadership development and change management”. LCM website (<http://www.stou.ac.th/lcm>) was employed as communication and learning tools. *Phase 2 Face-to-Face Intensive Seminar* emphasized upon special lecture, group interaction for developing best practice

on leadership competencies for nurse leaders in ASEAN countries as well as network development and nursing administration innovation development. This paper will only present online course activities.

The online course was conducted by three steps as below:

Step 1: The development of the four - month online course on “Leadership Development and Change Management for Nurse Executives in ASEAN Countries” based on connectivism approach. 10 content modules based on a clear taxonomy and specific criteria was designed and presented by resource persons from various fields whose expertise contributed in each module. Content modules provided visual distinction and consistency to specific types of information which enabled participants to simply learn step by step.

World Wide Web, *LCM website* (<http://www.stou.ac.th/lcm/>) was utilized for support participants' learning and sharing their knowledge as well as valuable experiences. Based on Monterey Institute for Technology and Education (2010), the development of the LCM website was supervised by the first author who has experienced on teaching & learning via internet, and the development of short course trainings at STOU for more than 20 years. The LCM website is demonstrated as Figure 1.

**Figure 1** Components of the LCM website



The characteristic of such online course is an instructional science and art that transfer knowledge through joint learning activities among training participants and training facilitators. Resource persons whose expertise in content modules of the training course or lectures played a vital role in providing information, guidance, screening overwhelmed online information/knowledge to training participants or learners, and then integrated with practice that would accordingly bring about development of new body of knowledge or innovation for nursing leadership and administration.

Step 2: 74 participants were recruited by purposive sampling from nurse executives and registered nurses in five ASEAN member countries namely Thailand, Malaysia, Myanmar, Lao PDR and Vietnam. All participants registered to attend the online course and conducted three activities as follows. *Firstly*, participants learned by attending online modules, learning one module weekly and then provided reflection on each module under supervision of researchers or LCM team as facilitators. *Secondly*, participants shared their knowledge from their learning together as well as experiences in the “Knowledge Sharing” forum (Online Interaction). *Lastly*, each participant developed a mini innovative project or creative work task on the basis of the course component. After completed three activities, the participants came to participate in face to face intensive seminar.

Step 3: The training course was evaluated by participants. The development of the research tool, questionnaire, was based on Monterey Institute for Technology and Education (2010). The questionnaire was verified by 3 experts and then was sent to the participants.

Descriptive statistic was used for quantitative data, and content analysis for open end questions and participants’ communication from “knowledge sharing”. Upon completion of the course, 50 percents of questionnaires were returned via email within a week.

**Research ethics:** This study was approved by the Human Research Ethics Committee of the School of Nursing, Sukhothai Thammathirat Open University in Thailand .

Research leader informed participants about the purposes and procedures of the study and then provided research informed consent as well as research consent form. Participants had been informed that they were research subjects and they reserved the right to cancel their permission to use their information by researchers

**Research findings:**

Recruited participants were 74 and became active participants 46 (65.22%).

Questionnaires were returned 37 (80.43%). The study findings included 3 parts as follows.

**Part 1** Components of the Online Course

The LCM online course consisted of four components: input, process, output, and outcome. It is demonstrated as Figure 1.

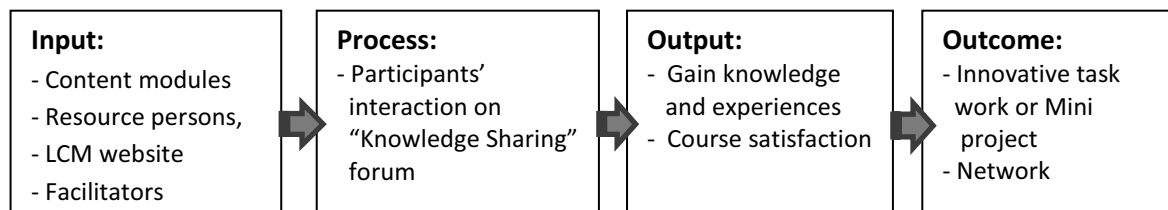


Figure 1 The components of LCM online course

From Figure I, (1) *Input component* consisted of ten content modules (Module 1-10), LCM websites, resource persons, and facilitators. On invitation, modules were developed by experts or resource persons from various fields, including nursing, education and management who had expertise in the specific content modules. Each module lasted for 50 minutes. The first module served as the orientation to an online course introducing LCM course team, LCM website, course schedule, and assignments and enabling participants to get to know how to learn this course. For modules' presentation, contents in Module 2-9 were quite useful and relevant with leadership and change management. Knowledge and experiences were successfully imparted onto participants. Their gained knowledge could be led to practical application in their current work, so that they would be able to critically analyze, synthesize, and share their reflection in "Knowledge Sharing" forum after completing the study of each module. Module 10 was constructed by participants' view and the presented best practice during the seminar on "Leadership Competencies" for Nurse Executives in ASEAN Countries. All ten modules were accessible through the LCM website.

As friendly user, LCM website was simply created and easy to access. With the technology requirements, course format, and course environment, the LCM website was designed by a web designer cooperative with the LCM team. Course format refers to the delivery method for the course contents and how to be accessed by the participants. The LCM website requires only Window 7 or higher for operating systems, and Internet explorer 9 or Google chrome for browser. Course environment refers to the course management system or mechanism through which a course is taken by a participant or administered by a facilitator. Furthermore, Feedback loop is an icon "Knowledge Sharing" on the website page refers to content and feedback provided as part of the course. From time to time, participants were encouraged by facilitators to study and share their reflection continuously in "Knowledge Sharing" forum following the module schedule.

(2) *Process component* consisted of participants' learning and interaction. Communication tools which included email address ([aseanlcm2014@gmail.com](mailto:aseanlcm2014@gmail.com)) and LCM website are those tools and features that reside in the course environment that allow training participants and training facilitators to interact with one another. Participants' interaction with each module refers to the activities and assignments that they are required to complete.

(3) *Output component* was the enhancement of participants' knowledge and experiences as well as their satisfaction in the online training course.

(4) *Outcome component* was the result of the course, Module 10 which is constructed by participants after transfer contents module into their practices. The learning outcomes are innovative task works or mini projects resulted from the modules study. Then participants were assigned individually to prepare themselves for attending face to face intensive seminar in Thailand. Networking was also expected a desired outcome.

The output and outcome components will be further presented in Part 3.

## **Part 2 Online Course Evaluation**

Overall, the online course was evaluated by those training participants. It was found that the online course is appropriate to utilize for nurse development especially nurse executives, and also can be used for building up network among nurses in ASEAN countries. More details are described both quantitative and qualitative data as below.

*2.1 Personal data:* Most participants had age between 51-60 years old (48.6%). They are all female, their majority graduated at a Master degree level (43.2%), and most of them were from Thailand. Participants' positions were mostly from nursing service sector (85.29%),

and they took roles as managers (61.77%). Top three rationales why they were interested in this project, were to increase their networks both national and international level, to improve change management skills (83.8%), and to enhance specific leadership skills (81.1%).

The evaluation was based on 7 components of MITE (2010), it was found that the participants agreed and satisfied with the components at the high level.

*2.2 LCM website:* All training participants (n=35) rated that they were satisfied with the LCM website. They agreed that the website design was attractive and easy to apply, read, and participate in knowledge sharing. Sequencing of the LCM website was appropriate. They also agreed that instructions of the LCM website were understandable to follow. Furthermore, they agreed that any announcements were posted timely. Finally, they knew how to contact facilitators or the project leader.

### *2.3 Content Modules*

Most participants (n=33) agreed and were satisfied with all content modules developed by experts from various countries and disciplines, and well ordering. The modules presentation was clear and inspired participants learning. Module I Course Orientation helped those participants getting to know "how to learning this course". Content Modules and presentation (Module 2-9) were useful and efficiently imparted knowledge and experiences to participants. A number of participants (n=10) were found happy with Module 10 that was constructed by participants' perspectives and presented best practice on "Leadership Competencies for Nurse Executives in ASEAN Countries".

### *2.4 Knowledge Sharing (online interaction)*

Most of participants had regularly shared their knowledge and experiences via "Knowledge Sharing" forum after finished learning each module. Some participants reported they had spent about 10-12 hours to study some modules, for example Module 2. Most participants were quite satisfied with Module 1, Course Orientation that led them know "how to study the online course". Examples of their expressions are:

*"I am very pleased to join with LCM 2014. I would like to express my gratitude to all project leader team for their clearly orientation (P1 from Thailand)." "The module one provides very useful information to complete this online course (P2 from*

Myanmar).” “For my opinion, this module is very useful to participants. We can know how to and what we are going to learn online. It makes me easier to join this program (P23 from Thailand).

Most participants (n=34) reported that they enhanced their knowledge and experience after their study and most of them (n=30) reported that they were able to apply knowledge and experience from “Knowledge Sharing” to their practice.

## 2.5 Overall Course

Most participants (n=25) strongly agreed that this LCM course not only met their expectations but also encouraged them to improve their change management skills (n=22), and leadership skills (n=24). They also reported that they would recommend this program to for others.

### 2.5.1 Strengths of the course

A number of participants (n=14) reported that the strengths of the LCM course was the ubiquitous learning. Courses can be provided to them anytime, from anywhere and they can learn and work concurrently. The online course were accessibility, up-to-date, well planned and organized, easy to learn, and relevant with practical situation. They were able to repeat over and over when they did not understand content of each module. The content of learning could be applied in real situations. The assignments encouraged students to improve leadership skills as well.

### 2.5.2 Weaknesses of the course

Fortunately, about 50 percent of participants (n=17) reported that they could not find any weaknesses of the LFC course. Some participants complained about quality of online presentation. Some of them said that the sound of some module was not clear. One of participant complained that some lengthy modules and time consuming. Four participants from Myanmar informed internet service was unavailable and a number of participants - encountered problems in internet access that apparently interrupted their learning. However, the DVD recorders that were provided later were very useful for them to study the modules.

### 2.5.3 Obstacles or Barriers

Most participants (n=24) reported that the barriers were found in modules accessibility, such as poor local infrastructure technology, self-disciplined of learners, limitation of language and culture in communication. However, regularly supporting, mentoring and monitoring from LCM facilitators helped them to continue attending the course.

### 2.5.4 Suggestions: Many suggestions were reported as follows.

- 1) Learners should complete previous modules before moving to the next module.
- 2) The course should provide internet service for information search and translation.
- 3) The course should provide exchange program and learners with all of ASEAN.
- 4) The course should provide study visit to study health care system in other ASEAN countries for comparison.

- 5) Modules should be shorter as it will be easier for study.
- 6) Implementation for teamwork should be added as an Output of this course.

### **Part 3** Learning Process and Learning Outcomes

Research findings found that Learning Process of participants had been regularly contributed and supported by project team as facilitators via “knowledge Sharing” forum and personal emails.

The online course contributed and supported participants-in transferring knowledge to improve their practice in workplaces and organizations as well as building up ASEAN nurses’ network. The training participants were also very impressed by LCM team working as an efficient team work. For example, some participants expressed their feeling and perspectives via “Knowledge Sharing” forum as follows:

*This online training course is composed of 10 colorful modules that are important for nurse executives to be a competent leader (P8 from Myanmar). Finally, after finished 10 modules of learning, I am able to build nurse leaders and executives network in ASEAN countries. LCM training give me a chance to gain more acquire knowledge and experiences from training due to apply to my actual administration to my Nursing Faculty (P1 from Thailand). At the end of the course online at this time, I feel proud, impressed in the care of the team. I get lots of benefits, the practice of self-learning, manage time for training, practice of using English and get lots of knowledge about leadership, which can lead to better myself and our organization. Besides that, I also have friends in ASEAN (in the same profession) that cause the network to work in the future (P4 from Thailand).*

*In this ICT era environment, nurses leaders should acquire ICT skill to keep in pace with the latest information and be a role model to nurses. The arrangement of the model was well organized from general to more specify... This platform have created very good networking among regional nurses especially ASEAN. It has opened the door for future collaboration and building our own support at the region. I sincerely hope to see more collaboration acidities following this project (P28 from Malaysia). According to our new vision, we are planning to achieve international quality and then reach to premier national healthcare network with presence across the country and godly compassion which are affordable and accessible health care to all socio economic segment (P15 from Myanmar).*

*Today, our hospitals change day by day, through this program, I had changed health care module. This was extremely challenging forms but I still believe in it because I was so lucky to have found this program and learned so much to be able to change my currently management plans.... I want to contribute these knowledge for nurse managers in Vietnam (P7 from Viet Nam).*

Learning outcomes of the online course implementation, it was significantly demonstrated that 22 participants transferred knowledge into their best practices, and then developed 17 innovative projects /creative work tasks based on the content modules.

## **Discussion:**

The online course is an alternative to improve professional knowledge and skills. The LCM online course was designed to meet the needs of executive nurses among ASEAN countries in order to overcome leadership and change management skills. The content modules provided rich information enough to inspire participants to apply it into practice in their workplace. Moreover, the learning activities encouraged participants among ASEAN countries to make meaningful interactions among participants and resource persons.

One of the key aspects of maintaining a sense of community online in this study was “reflection” or “Knowledge Sharing” session. Phillips (2005) suggested that the uses of active learning strategies in online education could enhance learning outcomes. Educators served as facilitators of learning, supporting participants to share their knowledge and experiences and achieving learning outcomes. The main purpose of these reflective activities was to encourage participants to critically analyze what they were learning and openly share their thoughts among participants. Educators served as facilitators who encouraged participants sharing their learning and supported participants in transforming their perspectives to online learning community as part of the learning process. The similarity and differences of the individual or community of practice were explored and discussed. One of agreement was that any answers were neither true nor false so that participants had an opportunity to learn from others from this session and freely build up their network and trust relationship. Haggerty (2009) supported that trust relationship is necessary to build up social presence and interaction between learners and teaching staff. She also discussed the importance of ensuring that learners were well orientated to the online learning environment, with students new to the environment needing to have a face-to-face orientation. Though the face-to-face orientation class had not been arranged in this study, the online orientation module should be effective enough for participants to know online learning environment and get ready in studying online course.

However, some registered participants dropped out from the study; it might be due to the internet access barriers and the commitment of their current work. Williams, Gunter and Nicholas (2006) stated that access, computer literacy and technical issues can be barriers to the establishment of a virtual community of practice. Most participants also reported that they had problems of internet access so that they took too longer time to access each module. The obstacles of the online study were stated above.

## **Conclusion & Recommendation:**

Since the LCM project based on connectivism approach, the development of the online course on “Leadership Development and Change Management for Nurse Executives in ASEAN Countries” was therefore focused on learning process and facilitated by researchers as facilitators, bringing people altogether, as well as building up ASEAN network. According to a principle of connectivism, it is also believed that “a right answer now, it may be wrong tomorrow”. As a result, supporting, mentoring, and monitoring approach to participants throughout the online course by facilitators were



quite necessary to encourage their continuous attendance in the entire online course, and to become lifelong learners.

Connectivism approach placed emphasis on learning process; it also inspired participants applying knowledge into practice concurrently. Furthermore, good learning outcomes have emerged in terms of both participants gaining of knowledge and experiences, as well as building up nurses' networking among ASEAN nurses. This online course demonstrated that it is innovative and different from other online discussions and other courses.

Therefore, if this important course in ASEAN region is to be distributed to ASEAN nurses, particularly to nurse in other countries who did not have opportunity to attend this course, they need to be provided with additional assistance to ensure they are able to successfully attend the online course in the future. Moreover, the online course can be further developed – by considering possible ways in which such a training course could be better improved in the future.

#### **Acknowledgement:**

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# **A cognitive apprenticeship approach to teaching organic chemistry online: Challenges and opportunities**

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## **ABSTRACT**

Organic chemistry involves the study of structure, properties and reactions of the compounds of carbon. This sub-discipline of chemistry usually requires a laboratory instruction that facilitates the students' understanding of organic chemistry. In an online learning environment, employing laboratory instruction is quite challenging. Learning chemistry by online mode may be limited to the use of either a virtual laboratory or a laboratory at a distance, both of which involve a distant mentor or a facilitator. In this paper, the authors explore the possibility of applying the cognitive apprenticeship model to online teaching of organic chemistry. The experiences of the authors in teaching organic chemistry by face-to-face and in facilitating by distance and online mode will be shared to demonstrate how the four dimensions of ideal learning (content, method, sequence and sociology) and their components are incorporated in the design and development of strategies of instruction in organic chemistry. Moreover, in this paper, the authors will share experiences on some new trends in teaching organic chemistry such as the student-centered learning, problem-based approach and resource-based learning.

Keywords : Cognitive apprenticeship model, distance and online learning, organic chemistry

## **Introduction**

In early years, when universities did not yet exist and when education was not yet a field of study, people learned through the process of apprenticeship in which a more experienced person (the mentor) provides examples to and assists a less experienced one (the apprentice) so that the less experienced person gains new knowledge and skills. This mentor-apprentice model had been applied to learning traditional crafts in non-formal instructional environments. Recently, this apprenticeship model has gained importance and has been adapted to the cognitive or intellectual domains.

### *What is Cognitive Apprenticeship?*

The cognitive apprenticeship model was developed and proposed by Collins, Brown and Duguis (1989) for teaching reading, writing and mathematics. According to the authors, the model is “an alternative model of instruction that is accessible within the framework of the typical American classroom. It is a model of instruction that goes back to apprenticeship but incorporates elements of schooling.” (Collins et al. 1989).

Cognitive apprenticeship is a pedagogical model of learning inspired by the apprentice-expert model wherein the apprentice learns through experience and practice guided by an expert of the skill. The model provides an opportunity for the apprentice to observe how experts solve complex problems. Stewart and Lagowski (2003) stated that this model “might be viewed as learning by doing; it is a sequentially guided learning process with expert models and expert feedback.”

Recent studies have reported evidences that the cognitive apprenticeship model is able to enhance “students’ high-order thinking abilities” and that its combination with collaborative learning resulted in significantly better problem solving performance (Kuo et al. 2012). The findings of Wei and Corbet (2011) suggest that the combined cognitive apprenticeship learning and cognitive tutors approach resulted substantial gains over traditional instruction. In the study of Alger and Kopcha (2010), the student teaching field experience was improved through a technology-based innovation using the cognitive apprenticeship as a framework for its design. Furthermore, the findings of Stalmeijer et al. (2009) suggest that this model is a useful model for teaching strategies in undergraduate clinical training and a valuable basis for evaluation, feedback, self-assessment and faculty development of clinical teachers.

This paper presents a cognitive apprenticeship approach to teaching organic chemistry. Organic chemistry is a sub-discipline of chemistry that involves the study of structure, properties and reactions of the compounds of carbon. It is an experimental science that often requires a laboratory experimentation to better understand and appreciate the concepts in organic chemistry.

## **Objectives**

The paper aims to look into the applications of cognitive apprenticeship theory on teaching organic chemistry online. Specifically it aims to (a) demonstrate the four dimensions of ideal learning (content, method, sequence and sociology) and their components in the context of online teaching of organic chemistry, (b) employ the model in developing strategies for online teaching of organic chemistry, (c) incorporate some new trends in teaching into teaching organic chemistry, and (d) identify the challenges and opportunities of teaching organic chemistry online employing the cognitive apprenticeship model.

## Methodology

This paper presents the personal experiences of the authors in teaching organic chemistry in face-to-face mode and in distance and online modes. It will deal with the authors' teaching experiences on how the cognitive apprenticeship model is employed into teaching organic chemistry. Furthermore, the authors will demonstrate the design and implementation of an online organic chemistry class using the cognitive apprenticeship model.

In the University of the Philippines Open University, organic chemistry is offered to students of the Diploma in Science Teaching (major in Chemistry) program. Current students of this program already earned an undergraduate degree in Education. This course is administered fully online.

## Discussion

Cognitive apprenticeship constitutes four dimensions of a learning environment (Collins et al. 1989) namely Content, Methods, Sequence, and Sociology. Each of these four dimensions involves various components briefly described in Table 1.

Table 1. The four dimensions of a learning environment according to Collins et al. (1989)

Dimension	Components of Each Dimension
1. Content (type of knowledge)	Domain Knowledge – collection of learned conceptual and factual knowledge and procedures that are explicitly identified with the subject matter
	Heuristic Strategies - “tricks of the trade”; generally effective strategies employed to accomplish the tasks involved in the subject matter
	Control Strategies – collection of the techniques and steps to direct processes to accomplish the tasks; includes monitoring, diagnostic and remedial strategies
	Learning Strategies – involves knowledge on how to learn new knowledge
2. Method (ways of learning)	Modelling – learner’s observation of an expert accomplishing a task
	Coaching – an expert observes a learner accomplishing the task and provides feedback, hints, advice, assistance, support, exercises, explanations etc. to improve the learner’s implementation of the task (scaffolding and fading)
	Articulation – the expert encourages the learner to express their knowledge through a clear and effective language
	Reflection – the expert encourages the learner to compare knowledge, reasoning and problem solving strategies with those of the expert and of the other learner
	Exploration – the expert encourages the learner to pose and solve problems on their own
3. Sequence (keys to ordering learning activities)	Global to local skills – conceptualize the task first before executing the parts of the task; concept map first before details
	Increasing complexity – tasks are gradually increasing in difficulty
	Increasing diversity – practicing more problems to acquire varied strategies and skills and to emphasize broad applications

4. Sociology (social characteristics of learning environments)	Situated learning – learning through the context of working on realistic tasks using the acquired knowledge
	Culture of expert practice – engagement in the skills of expertise and active communication about ways to accomplish the task
	Intrinsic motivation – setting of personal goal to be involved in the learning process and to acquire knowledge and skills
	Exploiting cooperation – learners accomplish their set goals through working together

In teaching organic chemistry through the cognitive apprenticeship model, the content dimension should be the same regardless of the mode of teaching because the subject matter as well as the topics is constant. The sequence and sociology dimensions do not vary significantly between strategies of teaching the subject matter face-to-face and by online mode. However, the implementation of the method dimension differs for the face-to-face and the online modes of teaching organic chemistry.

#### *Content Dimension*

The content dimension or the type of knowledge acquired by the students in an online chemistry class should necessarily be the same with those in a face-to-face class. The domain knowledge in particular must be constant because there is only one subject matter. Likewise, the same heuristic strategies in organic chemistry must be learned by the student regardless of the mode of teaching. Variations may occur though in the face-to-face and online implementation of some control and learning strategies. Stewart and Lagowski (2003) defined the three control strategies such as monitoring strategy (strategy that help student monitor his progress), diagnostic strategy (strategy used to understand the source/s of student difficulties) and remedial strategy (strategy used to reduce or eliminate student difficulties). In a face-to-face class, the authors find employ recitation techniques (question-and-answer type) to allow students check their own progress. Quizzes performed before or after a class session are also given by the authors in their face-to-face class to determine the areas at which the students experience most difficulty. The authors respond immediately to provide feedback to address the areas of difficulties encountered by the student. However, in the online organic chemistry class, the authors are quite challenged to monitor their students' progress immediately because the class is held asynchronously. To address this challenge, the authors designed self-check points for students to monitor their own progress. Furthermore, these self-check points allow the students to determine the seemingly challenging topics for them to work on.

#### *Method Dimension*

Teaching organic chemistry online requires unique strategies for the implementation of the five components of the method dimension. In modelling the skills to the students of the online organic chemistry class, the authors employ a resource-based learning approach for their students. The authors provide a list of various web-based open educational resources (OERs) and other educational materials for the students to access the knowledge and skills for a particular lesson or topic. Since the authors are not able to personally demonstrate the skills and knowledge to their students, it is important that the resources provided by the authors will allow According to Dai (2004), laboratory experiments are very important for students' understanding organic chemistry and for enhancing the students' ability to address problems. Compared to the face-to-face classes, experimentation in an online class requires more rigorous considerations. For one, the problem and the resources must be thoroughly chosen such that

students are allowed to perform particular organic chemistry experiments on their own from their local position in the absence of their teachers. This somehow posed a challenge to the authors as they must consider the availability of the chemicals and facilities that the students will have to use and the safety of the students who will perform the experiments without the actual supervision of the teachers. To address the concern of availability of chemicals and resources, carefully chosen laboratory experiments are given for the students to perform. The experiments which are necessary to demonstrate the important concepts in organic chemistry, but are hazardous and dangerous if done without the proper and actual supervision, are only shown through virtual laboratories and/or video demonstrations.

Due to the need for web-based educational resources, archiving a wide array of web-based resources for the topics in organic chemistry has been a practice of the authors to prepare for the online class. As a result, the authors' perspective of the future includes a list of relevant and useful web-based resources for organic chemistry that has been used by their students, tested useful both by the teacher and by the students, and assessed to be of good and reliable quality in terms of accuracy of the content knowledge.

The second component of the method dimension is coaching. In the online organic chemistry class, the authors offered various modes coaching strategies to their students such as self-assessment questions (SAQs), online quizzes and graded exercises to provide assistance, support and scaffolding. The authors find that it is essential to have a well-established feedback mechanism especially for an online class where personal and synchronous contact between the teacher and the student may not exist unlike in the face-to-face mode. Furthermore, the authors also observed that a quick and immediate response and feedback are necessary to promote a more stable scaffolding of learning for the students. This somehow poses a challenge since most of the time, communication between the teacher and the students occur asynchronously.

In the implementation of the last three components of the method dimension, namely articulation, reflection and exploration, the authors employ the online discussion forums for students to participate in. The authors encourage the students to articulate what they have learned about the topic by posting questions about some topics about organic chemistry in the discussion forum page of the online classroom. A reasonable time is given for the students to respond to the posted question. During this time, students are also allowed to respond to their classmates' answers to the question. At the point where students respond to each other answers and compare their knowledge with one another, reflection occurs. The authors also employ the discussion forum as a means for exploration. In this way, the authors pose a particular situation or condition for students to address using their knowledge of organic chemistry.

#### *Sequence Dimension and Sociology Dimensions*

With the teaching experiences of the authors in face-to-face and online classes, it is found that the teaching practices for the implementation of both the sequence and sociology dimensions are almost the same except for the cooperation aspect of the sociology dimension. In a face-to-face class, cooperation among students occurs even without the teachers' instruction. They spontaneously work together especially for clarification of the difficult topics. However, in an online class where students are not on the same location, cooperation is seldom successful. The students of the online chemistry class are located in various places in and out of the country, therefore there is least, if not nil, cooperation to work for a particular task. Generally, the authors do not usually employ group work for one particular class in any of their online classes.

## Conclusion and Recommendations

This paper discussed the applications of cognitive apprenticeship theory on teaching organic chemistry online. The four dimensions of ideal learning namely content, method, sequence and sociology and their components were demonstrated in the online teaching of organic chemistry in UP Open University. Various innovative teaching strategies had been employed to ensure effective delivery of the content knowledge of the subject matter. Some of the online teaching strategies employed were taken from the experiences of the authors from face-to-face teaching but with modifications and adjustments appropriate for the online mode.

The authors highly recommend that the students perceptions of and experiences in the organic chemistry course be determined in the future. These will provide information whether the cognitive apprenticeship model helps them have a better understanding of the content of the course.

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# Quiz model for a distance education textbook

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## Abstract

Improving quality of learning materials by enacting exercises/quizzes as an interactive medium text book in Distance Education was the aim of this study. Evaluation of Learning materials involved some elements that could provide improvements: students, experts (materials, media, and language) and tutors. Evaluations were very useful in obtaining information on the "shortage-comings" of learning materials. This research applied three steps: preliminary study phase, trial of one to one with three students, and small group test with ten students. Data was collected through three stages: content analysis, interviews, and questionnaires (open and closed). The results showed: exercises/quizzes includes five categories, (1) the need for students to enrich exercise and understanding material, (2) compliance with the depth and breadth of exercise materials in discussion, (3) pattern of interactive exercises were not rigid and monotonous, (4) the language used systematic and coherent practice, (5) exercise equipped with signs/guidance and graphic media that supports mastery of the material. Exercise was developed referring to the suitability and quite understandable. The existence of the varied exercises display will be able to motivate the enrichment material and was not tedious. Based on the results of this reasearch, exercise\quizzes model developed were useful and valuable.

Key words: Module, Exercise/Quiz, Distance Education

## **Rationale**

Open Distance Learning (ODL) system is different from conventional in some aspects. In learning process, ODL students are demanded to learn independently. Indonesia Open University (UT) provided self learning material which possibly students to learn independently. As self a learning material, it should be communicative, interactive, and oriented towards the interest of student to learn. Julaeha and Pratmoko (2004) stated that the foremost learning materials in UT were printed materials. The learning materials that also called module, specially designed to allow students to learn according to their respective capabilities.

In order to keep quality of UT learning materials, evaluation is an essential. The evaluation process should involve experts (in materials, media and language), graphic designers, lecturers or tutors and students. They were considered providing useful views, opinions and experiences. Interactive learning and exercises/quizzes could assist students understanding material, sharpen ability in mastering concepts, and build foster self-reliance and sense of fun to learn.

Ellington and Race (1997) stated that printed instructional materials in Distance Education (PJJ) should be designed in simple language, communicative, clear, and involve students in thinking processes and evaluate the mastery level of the self-learning process. Learning materials evaluation is a part of materials development management. Evaluation aims to review the quality of learning materials and to suit the standard quality management system.

## **Evaluation of Learning Materials**

According to Julaeha and Pratmoko (2004 ) that learning material should be easy to read and digest, simple language, communicative, clear, able to engage in thinking process; and allowing students to evaluate themselves level of mastery. Formative evaluation is a process of providing and using information in making decision with the intention of quality improvement of learning materials. Formative Evaluation is obtained from: (1) experts review of materials/instructional media; (2) student learning outcomes; (3) student opinion. Suparman (2005) stated that the revision of learning materials based on the results of evaluation. Thus the effort of learning materials evaluation is an important step to develop and improve the quality of learning materials. According to Smith, P.L. and Ragan, T.L. (2003) evaluation is a process of data and information collecting and that is carried out to assess and make decisions. Another view by Zainul and Nasution (1997), the purpose of the evaluation is to measure a quality in accordance with the opinion. of Learning materials evaluation could be defined as the act to determine the quality of the long distance learning materials\Interactive Exercise/Quiz Model and Varied in Module

Complexity, uniqueness of learning process, accuracy of media selection and learning methods are greatly affect to learning outcomes. Selection of media,

complexity and uniqueness of learning process, understanding the meaning of perception and the factors that influence the perception of explanation should be high attention in gaining effective learning process.

### **The Power of Exercise/Quiz as Learning Material**

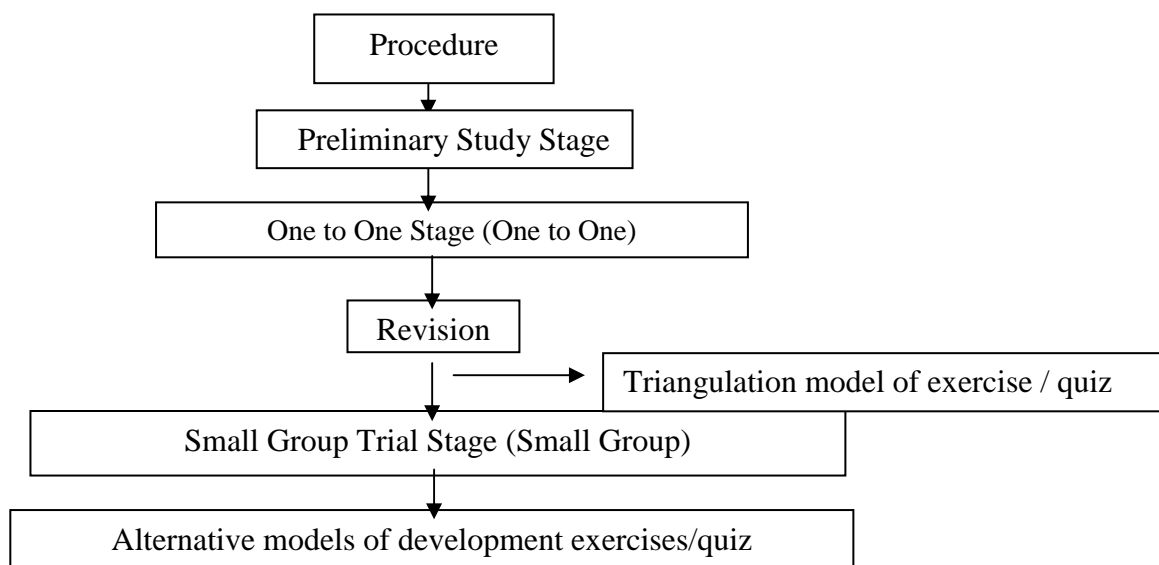
The aim of exercise in learning process is an accomplishment of repetition in order to enhance better learning outcomes (Degeng, 1989). Exercise could be individual or group activity. By stating well the aims and direction of learning could influence the effectiveness of learning process. Morrison, Ross and Kemp (2001) stated that exercise/quiz as an important component in learning material.

Function of exercise in learning process: (1) Provide a good educational experience (2) Improve learning outcomes, control aspects of students behavioral changes (3) Develop solving problem skill in case to face both individual or group problem; (4) Useful for daily life as learning transfer; (5) Help in making an effective way of learning, such as: remembering (memorization), copying and automation to answer; (6) Support and expand motivation to learn. While, factors that ensure the effectiveness of exercise, such as: (1) Environmental study gives a big influence in exercise. (2) Exercises must be functional (3) Exercises must be implemented systematically, based on a careful plan with well structured sequence. (4) Exercises performed in considering time well (4) Effectiveness of exercise depends on the quantity of the materials (5) Distribution of exercise

### **Research Method**

Method evaluation used as a guidance document analysis using questionnaires, interviews and observations that have been designed by researchers. The object of this research was Basic Concept of Social Science. Components of the learning material evaluation focused on exercise/quiz in modules 1, 4 and 12. The elections to the three modules based on the results of Learning materials research in 2010. The research showed that the modules assessed by the student has the characteristics of the material elusive because it consists of understanding the basic concepts social Science, time series on the development of the concept of history, the model design and implement basic skills in Integrated Social Science. Instruments of the development of interactive component of exercise/quizzes with reference to: (1) Compatibility of Exercise with Material, (2) Language, (3) Pattern and Exercise model and (4) Format Measurement.

Chart 1. Visualization of the Flow of Research Procedure



### **Review**

In this stage, the analysis of the module documents and the result of expert opinions were generated. Experts found that (1) material was too broad and overlapping and complicated. (2) direction of strengthening competencies of Module 4 was unclear, (3) materials were less depth.

### **Enlightenment**

In this stage, enlightenment activities conducted concerning with the evaluation of learning materials. Researchers followed evaluation in learning materials workshop and National Conference of Teachers. In addition, researchers also followed academic and scientific conference in ICDE in Bali. This opportunity was a place to get a reference about the use of distance learning materials as the main pillar of learning for distance education students. In enlightenment, researchers gained knowledge about the various characteristics of learning material in distance education.

### **Excavation**

In this stage, the researchers made some observations in face-to-face tutorial activities. Researchers noted when tutors presented material in class and it became information and preliminary data for the improvement of teaching materials. In general, students and tutors were difficult to develop materials in certain parts of the module, especially in module 1 and module 4. The difficulties in understanding module. The material was too conceptual and less examples. In the question and answer session, tutors obtained information that the material presented in the module was less in training students to dig deeper.

## **Processing**

On this stage, researchers collected information and preliminary data regarding the use of learning materials. The data were described with notes during the processing stage. The results showed that the use of reflection instructional materials used by students emphasised on memorization. In addition, each learning model must implement embodied learning well. In addition, a variety of examples and non-examples inadequate and has made some students do not follow the lesson well.

## **Reinforcement**

In this stage, researchers, students and tutors agreed to collaborate. Students and tutors as an important component in this study and fully participated and had attitude to dig the desired quality of learning materials. The researchers conducted a non-participatory observation for 2 months (8 sessions). Face to face tutorials were very complex, so it is based on the analysis of strengths and weaknesses derived from the students and tutors and facilities that support quality of learning materials that meet both criteria need to be followed by the development of better evaluation, in the form of guidance instruments and in-depth interviews. At this stage, the researchers developed a questionnaire and interview a variety of instruments. Development of an instrument based on the need for research on the improvement of learning materials especially dig practice models for improving learning materials.

### **A. Planning for research scheme**

The planning stage is the creation/innovation of focus material that has been studied by making some plans to achieve targeted. At the planning stage, the researchers compiled data retrieval program agenda and interview for the respondent. The respondents involved in the students who have taken Social Science, tutors, lecturers, learning/material expert, and printing/graphic design experts. This planning scheme produces format research study design and analysis instruments needed. According to the results in planning stages, further it carried the reflection of any data generated by the respondents.

Furthermore, in reviewing the implementation of the instrument to the respondent generated the data and sub-culture that begins with an axiom, that is the challenge. Challenges arise from the idea, the will, and the urge to take the initiative, namely creative thinking and innovative action that can overcome and solved the initial challenges.

### **B. Results of One to One Student Review**

When conducting the interviews there are a one-on-one student with the category of smart student, moderate and less. The data obtained in the form of the initial information about the quality of the exercises/quizzes in the modules to assess the

mastery of the material. Evaluation tool used was Module of Social Science and interview guides. Engaging 3 person of Undergraduate student as evaluators.

The results of three students in one-on-one interview showed that the diversity of response and assessment of the exercises in the module include: appropriateness of the material, pattern of the graphic display, the language used, the presented text, the clarity of the instructions in doing exercises, fitness exercises with text, and the presented exercises questions. Deepening the interview according to the students about the quality of the exercise modules are included in the category of less by achieving a percentage of 40 % -70 %, so some certain parts of the exercise component needs to be improved.

After giving the assessment, the one-on-one three students give advice, criticism, and commentary on the exercise in module 1, 4 and 12. Broadly students suggested that exercise in the module should be improved in these 5 categories:

1. The needs of exercise to help to enrich and understand the material
2. Conformity with depth and breadth of exercise materials that have been studied in the discussion module
3. Patterns of exercise are interactive and varied ( not rigid and monotonous )
4. Language used in the practice are systematic and coherent
5. Exercises equipped with direction/guidelines and graphic media that supports mastery of the material

Their comments about the exercise that was developed was referring to the suitability and quite understandable. With the varied display of exercise, it can motivate enrichment material and not tedious.

### C. Discussion and Analysis of Matter Expert

Based on the analysis results obtained from the expert material, it can be seen that the matter experts provide an assessment of the quality of materials that include: Compliance with the completeness of the Exercise material, the breadth of the material, the depth of the material, the accuracy of the concept the accuracy of the example, and the linkage concept. Matter experts stated in the recommendation section, that the quality of the materials developed in modules 1, 4 and 12 as well as the suitability of the material with exercises/quiz has been prepared which shows a pattern adapted to the purposes of measurement of low-level cognitive achievement through essay questions. But the critical and creative thinking are lacking accommodated, especially if you want to measure affective and psychomotor aspects, you must use the interactive and varied observation forms/process/performance, and others proper ways.

### **Revision Level**

At the stage of the model revision of exercises/quiz material performed by 2 experts, 2 tutors/ lecturers, 1 student and 1 graphic design. The results of the model

revision of exercises/quizzes largely showed good condition and incomprehensible. Almost 78% of the pattern is understood by the students. In the pattern for the description category descriptions, there is some trouble that is more varied than the simple format pattern to fill it. There needs to be an explanation of the statement which is easy to learn and the column is simpler. The change from the usual format contained in the module with a diverse practice models resulted in a pattern must be adapted to the character of the students who had been had. In the columns which are too much should be adapted to the capacity of memory and observation of students towards the subject. For example, for a column that is not contained in the module becomes an important part in the model of exercise/quiz. Similarly, the row numbers are described in detail and simple, not confusing. Several general studies with regard to the revision are as follows:

1. Every format has been revised and include the thematic title in accordance with the subject of discussion in the module.
2. Revised format in the original column consists of 3 columns to 2 columns. (see attachment) . This is because it is more modest and simple.
3. Exercises/quizzes included multiple indicators as signposts to facilitate students in analyzing the state of initial knowledge.
4. The numbers written is simple way and described systematically to avert confusing.
5. The pictorial material should be improved and simplified.

#### M. Small Group Trial (*Small Group*)

Based on the results of questionnaire revealed that small group of test overall percentage earned on average in almost every item by 85-90% expressed appropriate. These results are included in good criteria.

#### **Conclusion**

Based on the analysis of exercises/quiz in Social Science can be described as follows:

1. Exercises/quiz model was developed through three steps, such as *preliminary review*, *one to one test*, and *small group test*. The application based on a learning approach as a system (input - process - output) consisting some interfunction components to achieve goals; relating to the model to generate the design - implementation - evaluation and follow-up.
2. Students suggested that exercise in the module improved includes 5 categories:
  - a. Students need to practice and understand the enrichment material
  - b. Compliance with the depth and breadth of exercise materials that have been studied in the discussion module
  - c. The interactive and varied exercises pattern (not rigid and monotonous)

- d. The language used in the practice systematic and coherent
  - e. Exercise equipped with direction/guidelines and graphic media that supports mastery of the material
3. Exercises developed is referring to the suitability and quite understandable.
  4. The presence of varied display of exercises will be able to motivate for enrichment material and not tedious.
  5. Based on the results of the student questionnaire it is known that a small group of test overall percentage earned almost average on every item at 85-90% expressed that the model exercises/quizzes are developed accordingly. These results are included in both criteria.

**B. Recommendations**

1. Undergraduate program were expected to to produce a wide range of innovations.
2. Lecturers were able to implement various learning materials as the result of reasearch on open and distance learning.
3. Teachers/students might adopt the exercise/quiz as an alternative mastery of material.



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# **Teachers' team-building from the perspective of personalized education in China's open universities**

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**Abstract:** Personalized Education is defined as a people-oriented education with the characteristics of openness, subjectivity, distinguishing features and diversity. And its theoretical connotation is closely related to the philosophy of running open universities in China. This paper carries out a survey on the team-building of open universities both domestic and abroad and then analyse the problems in China's open university. The author would like to propose on the approach of how to improve teachers' team-building in China's open university under the circumstance of personalized education. Through our researchers, in order to promote personalized education, the Open University should build a team of teachers in conformity with the requirements of personalized education by means of concept-reconstruction, appropriate guidance, incentive regime and integration of human resources. Thus the key competitive edge of Open University can be enhanced.

**Keywords:** personalized education; teachers' team-building; the Open University; key competitive edge

## **1. Introduction**

It has been pointed out in the 'National Mid-long Term Education Reform and Development Plan (Year 2010-2020)' that we should focus on students' personalized developments and their different characters and personalities. This manifests the philosophy of personalized education.

In recent years, this philosophy has become a heated-discussed issue and development trend in the education field. It is promoted and carried out in most of the developed countries. Now the construction of open universities in China is being explored. We must learn from the experience of advanced countries and promote personalized education. Among all the factors, an excellent team of teachers is the guarantee. This article will elaborate on the team-building of teachers in open universities from the perspective of personalized education.

## **2. the Connotation of Personalized Education**

Currently the academia has not reached an agreement on the definition of personalized education. Some scholars hold that the personalized education is the opposite of uniform education; it stresses on individuality and explores the potential advantages in personalities; it stands for nurturing good character and achieving harmonious development of a person in a comprehensive way (Liu W.-X., 1997). Some

scholars believe that the personalized education refers to respecting students' individuality and promoting the development of their personalities. The author believes that the personalized education is a people-oriented education with the characteristics of openness, subjectivity, distinguishing features and diversity. It emphasizes that each student's uniqueness should be respected. Educators should guide the learners, give full play to their subjectivity and provide appropriate ways of education to their needs.

**Openness:** Personalized education provides timely, appropriate and proper personalized education according to the learners' needs, regardless of their age, occupation or background. Students can receive education at anytime at anyplace.

**Subjectivity:** Personalized education emphasizes on the learners themselves. Teachers should regard each learner as an independent person and respect their personalities. Only if the learners' subjectivity were given full play, the potential of learners could be further fulfilled.

**Distinguishing features:** In personalized education, to some extent, the learners become the principal part of learning. They have the right to autonomously choose their own way of being educated. Therefore, open universities must be able to provide distinctive personalized education; otherwise, they cannot survive the competition.

**Diversity:** In personalized education, students' diversity should be given full consideration, including the content and approaches of education so as for open universities to carry out customized education to meet learners' diversified needs.

### 3. the Practice of Personalized Education in the UK Open University and Inspiration to China

#### 3.1 the Practice of Personalized Education in the UK Open University

As an open, inclusive, flexible distance university with the feature of lifelong education, open universities should and must explore personalized education. Personalized education has become popular in the education field. Many developed countries have explored its application in their own educational reforms.

The UK Open University is the earliest and most successful one in the world. The idea of personalized education is reflected in its educational philosophy, curriculum, teaching management and service, and team-building.

##### 3.1.1 An All-round Educational Philosophy

An all-round educational philosophy is the guide to carry out the personalized education. It is a basic requirement for open universities to adapt itself to the times and current market. In the spirit of learner-centre, the UK Open University eliminates the obstacles of student enrollment, such as learners' identities or entrance examination scores. What is more, by virtue of the information technology, it breaks the limit and constraint of time and space in traditional education. It is now open to all the people, open to all the places and open for all time. This has laid the foundation for personalized education.

### 3.1.2 the Flexible Curriculum

A flexible curriculum is a prerequisite for personalized education. Learners in open universities vary in their own situations, learning interests and learning demands. In order to meet these diversified needs, open universities must provide corresponding courses (Si H.-Y., 2011). In the UK Open University, students can sign up for courses and obtain corresponding certificates, qualifications and diplomas at their own will according to their actual needs. Furthermore, the courses are set at different levels and are interchangeable in different majors. So the learners' individual learning needs can be satisfied, turning learning into customized and personalized.

### 3.1.3 Learner-centred Teaching Management and Service System

The learner-centred teaching management and service system serves as quality assurance for the personalized education. The teaching mode in open universities breaks through the limits of time and space and passes on knowledge via information technology and electronic media. In this mode, learners' autonomy is very strong.

In order to solve the problem of separation between teaching and learning, the UK Open University has also adopted the learner-centred teaching management and service system. The university provides a comprehensive guidance and detailed service for students so as to provide guarantee for the quality of education.

### 3.1.4 the Excellent Faculty

The excellent faculty is the key to the implementation of personalized education. The UK Open University is equipped with full-time backbone teachers, senior instructors as well as part-time educators and course tutors. At present the total number of faculty has reached 5,600. And a considerable portion of them are from famous universities such as Oxford or Cambridge. These teachers are required to have not only certain professional knowledge, teaching experience and knowledge of pedagogy and psychology, but also organization ability and a strong sense of responsibility. They are responsible for different assignments and play different roles. This is the key to the implementation of personalized education in UK Open University.

## 3.2 the Inspiration Drawn from the UK Open University

The UK Open University's teaching quality and level of academic and scientific research take the top spot in Britain. It also enjoys high reputation in the world. Its operational experience and characteristics are worthy of our study and reference in our construction of open universities in China.

### 3.2.1 the Key Competitive Edge of Open Universities

Personalized education is the key competitive edge in the construction and development of open universities in China. One of the features of Open University is openness, which reflects learners' subjectivity and their diversified needs. It coincides with the connotation of personalized education. Therefore, compared with other colleges and universities, the key competitive edge of open universities should be reflected in personalized education.

### 3.2.2 the Teachers' Team-Building

In the process of personalized education, the philosophy is the guide; the curriculum is the prerequisite; the teaching management and service system is the guarantee. But the key to the implementation in open universities is the team-building of teachers. At the end of the day, it is the educators who actually organize teaching and implement personalized education. Therefore, to build a team of teachers suitable for the development of personalized education is the decisive factor.

## 4. Problems of Teachers' Team-building in China from the Perspective of Personalized Education

There is still a long way for us to implement personalized education and fully meet the learners' various needs in open universities in China. At present, China's open universities are based on the original Radio and TV universities. We still have much to do to exert influence on the construction of learning-oriented city and the lifelong education system in our country.

### 4.1 Teachers' Teaching Philosophies

Learners' subjectivity is the theoretical basis of personalized education and the prerequisite for its implementation. If the learner-centered philosophy is not formed, personalized education can not be realized.

At present, teachers' teaching philosophies are now behind the times. Most of the teachers in China's open universities still position the roles of teachers and students in the traditional approach and require uniformity in class. Teachers usually dedicate most of the energy to repetitive and mechanical activities. They lack both self-learning and self-development.

### 4.2 Teacher's Career Development

At present, teachers lack proper guidance in their career development, whereas the implementation of personalized education requires teachers to achieve personalized development. Without personalized teacher, there would be no personalized education.

However, teachers in China's open universities usually carry a heavy workload of teaching tasks. So they attach great importance to teaching rather than academic researches. Many teachers can master the professional knowledge, but do not really have the speech right in the field; they can skillfully handle teaching methods and means, but have not formed their own teaching styles. The teachers' own strengths and potential cannot be realized, thus it is impossible to achieve their own individual and personalized development.

### 4.3 Incentive Regime

The lack of teachers' incentive regime would hinder the realization of personalized education. In the current system, teachers' performances are assessed and evaluated by their workload. This approach can only ensure that teachers finish the tasks on time. It is difficult to evaluate how well they implement personalized education, let alone reflect the features of personalized education. A proper incentive regime would encourage teachers to explore personalized education.

#### 4.4 the Quantity and Quality of Teachers

The current quantity and quality of teachers cannot satisfy learners' diversified needs. The basic target of personalized education is to meet the different demands of learners and realize their personalized and creative development.

There is a gap between the UK Open University and China's current open universities from the perspective of faculty strength, such as the number of teachers, their ages, majors, titles or ability to carry out personalized education. The current Radio and TV universities focus more on the classification of teachers at all administrative levels (Xiao J.-H., 2011). The advantage of Radio and TV universities has not really been made use of in the construction of open universities. The faculty strength in basic unit, e.g. at the municipal level or county level, is weak and unable to meet the demands in personalized education.

#### 5. the Approaches of Teachers' Team-building in China's Open Universities

In order to implement personalized education in China's open universities, we need a team of teachers who can meet the needs of different learners. The author believes that we can get down to it from the following four aspects.

##### 5.1 Reconstruction of Concept

The concept is the guide of action. In open education, learners come from all walks of life. They are of different ages and occupations; they are under diversified conditions. The premise to promote personalized education in China's open universities is to urge teachers to reconstruct their concepts, raise the awareness of 'openness', break through the traditional positioning between teachers and students and recognize that the difference is a kind of resource. Learners deserve more attention in open education than in the traditional education.

Teachers should respect learners' characteristics and treat them as equals. Thus, teachers can implement personalized education according to learners' diversified demands and at the same time achieve individual self-development under this philosophy.

##### 5.2 Appropriate Guidance

Appropriate guidance is vital to promote teachers' personalized development in China's open universities. Whether the teacher can take the initiative to self-develop or not directly determines the developments of the learners. Therefore, how well teachers receive personalized education will also determine their abilities to carry out personalized education, by which the quality of learners' personalized education is confined (Yu L. & Liu J.-Q., 2013).

A very important step to promote the teachers' development is for the universities to guide teachers' development. The key factor is to provide personalized training and other career development opportunities. Personalized education lays stresses on respecting each student's personality and potential. But teachers also have their own personalities and potential. For example, some teachers are the masters of practice; some are good at academic and scientific researches; some excel others in communication; some are experts in certain aspects in their own fields. The universities

should pay more attention to these issues, fully explore these potential and provide training opportunities so as to fully discover their potential and promote teachers' personalized development.

### 5.3 Incentive Regime

The incentive regime is a guarantee for personalized education in China's open universities. Countless cases in Chinese and overseas education history have shown that the survival and development of a school depends on its own brand features. The ultimate assimilation will hinder the development of schools (Wang Z.-H., Xiong M., 2012). In the field of adult education and distance education, the competition is intense. In order to stand out, the open universities should carry out personalized education, satisfy the learners' diversified needs and create their own signature characteristics.

Of course this needs the support from faculty. Therefore, the school needs to reform the mechanism of teacher evaluation system and incentive regime and at the same time, establish multi-dimensional evaluation system and developmental index. We should especially reward teachers who have formed certain characteristics in teaching, for example, by promoting them for encouragement. Thus we can meet the learners' needs and create our own brand features of open universities.

### 5.4 Integration of Human Resources

This is the key to teachers' team-building in China's open universities. The current quantity and quality of teachers cannot meet the requirements of personalized education. And it is not realistic to solve this problem solely by the introduction of talents.

China's open universities are established on the basis of former Radio and TV universities. One of the major distinctions between the Radio and TV universities and other universities is the systematic operation. For example, teachers at the national level in China's open universities (the first echelon) are mainly responsible for curriculum planning and teaching resources. Teachers at the provincial level (the second echelon) serve as a link between the national level and basic levels. They provide support and monitor the quality of teaching. The bottom is the basic level (the third echelon, or the municipal or county level), where teachers provide learners with direct support services and tutorials.

However, judging from the current situation, it is a bit difficult for teachers at whatever level to fully perform their functions. Let's take the curriculum resources as an example. On one hand, communication and understanding from top to bottom is not enough. Teachers with specialty and advantages are not playing their roles while teachers at the national and provincial levels fail to get timely feedback from the learners. On the other hand, teachers at the basic level open universities tend to work individually instead of as a joint force. The author suggests that we establish course teams within the system and divide up the work according to each teacher's specialty and strength. We could form resource-developing teams, research teams, management and service teams and give full play to their individual characteristics. We ought to pool the wisdom and efforts of everyone and maintain close ties with each other.

In addition, local community colleges are also based on the Radio and Television Universities. What's more, in the process of development, they have already established

a good cooperative relationship with other local colleges, universities or enterprises. We can make full use of this advantage via engaging experts in certain industries or inviting teachers from other universities to participate in open universities. Thus, we can establish a team of complementary and compatible faculty and finally meet the needs of personalized education.

## 6. Conclusion

The document named ‘the Ministry of Education’s Agreement upon Setting Up a National Open University on the basis of Central Radio and TV Universities’ was released by the China State Ministry of Education on July 5th, 2012. It says our National Open University will ‘meet people’s diversified and personalized learning needs and make its due contributions to the construction of a flexible and open system of lifelong education’. Nowadays, the competition in adult education is becoming increasingly fierce. The implementation of personalized education is the path that we open universities must take. We should give full play to the advantages of the former Radio and TV universities and create our own brand and improve the key competitive edge. Under the guidance of the personalized education, we expect that China’s open universities integrate various resources to create a team of high-quality faculty with specialties in order to meet the needs of personalized education.

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# **The impact of the integration of OER in teacher education programmes at the Open University of Sri Lanka**

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## **Abstract**

During 2013-2014, the Faculty of Education at the Open University of Sri Lanka (OUSL), with financial support from the Commonwealth of Learning (COL) has been engaged in the integration of open educational resources (OER) in its teacher education programs. This work which comprised the redesign of five selected courses within the Faculty with a view to integrating OER in them has comprised a series of workshops (with experts from outside the Faculty) on capacity building among course teams.

A key research question in an evaluation of the impacts of this work on staff has been, *how and to what extent this professional development program on the integration of OER in the course design and development process has assisted and empowered educators in relation to their work on education and training in the Sri Lankan education system.* In this paper we are starting to examine preliminary data which we have gathered on building the capacity of staff. Interpretive Phenomenological Analysis (IPA) was used as the core methodological construct to answer this question. This comprised gathering data using a range of tools including concept mapping with constant comparisons accompanied by individual narratives, self reflections and focus group interviews.

Data gathered revealed that this pilot project on the redesign of courses integrated with OER not only resulted in raising awareness of the potentials of OER among academic staff, building their capacity and capability on how to identify, evaluate, adapt and integrate OER into existing programs, but also led to the adoption of a culture of the use of OER in education and training more generally. We believe that this will in turn have a cascading effect on the development of other courses in the teacher education programs with OER integration, resulting in the enhancement of the quality of the teacher education programmes.

**Key Words:** Open Educational Resources, Professional Development, Course Design

## **Introduction**

Two of the most substantial obstacles to education and training in developing contexts are, access to reliable and useful learning resources which students and teachers can readily deploy in their and learning and teaching, and the costs of these learning

resources. The increasing availability of open education educational resources (OER) offers some answers and a viable way forward to these challenges to education and training especially in developing contexts.

During 2013-2014, the Open University of Sri Lanka (OUSL), with the financial support from the Commonwealth of Learning (COL) has been engaged in a project to build the capacity of the academic staff in the Faculty of Education in integrating OER into its teacher education programs. This work has involved the redesign and development of five online courses from five key professional development programs for teachers and teacher educators at OUSL, with a focus on the integration of OER in them. These courses were developed by five course teams consisting of academic staff in the Faculty of Education at OUSL. These five OER-integrated online courses were pilot tested with small cohorts of teachers/teacher educators who are students of the OUSL.

This was a professional development intervention designed to raise awareness among teachers and learners on the potentials of OER and developing their understandings, knowledge, skills and attitudes towards the integration of OER in the teaching-learning process. In this paper we begin to explore the impacts of that intervention.

## **Review of Literature**

Open Educational Resources (OER) are educational materials that are licensed in an open manner to provide users with rights to use them in different ways at no direct cost (UNESCO, 2012). The 2013 OER Asia Research Report which investigated OER developments and issues at regional and national levels advocates that the use and adaptation of OER would be a very cost-effective way to invest in curriculum development and quality teaching-learning material development (Dhanarajan & Porter, 2013).

The adoption and use of OER have been gaining a considerable recognition and significance in education due to their implications for opening up educational practices to enable greater flexibility and accessibility to resources in the teaching-learning process. Open education is not limited to OER, as it draws upon open technologies that facilitate collaborative, flexible learning and the open sharing of teaching practices that empower educators (Geser, 2007). Hence, the focus of attention on open education needs to extend beyond mere access to resources, to innovative open educational practices (OEP).

OEP are ‘practices which support the (re)use and production of OER through institutional policies, promote innovative pedagogical models and respect and empower learners as co-producers on their lifelong learning path’ (Ehlers, 2011). Implementing OEP involves selection, evaluation and integration of appropriate OER, while deciding the extent of *openness* and changing pedagogical practices and beliefs. When integrating OER in teaching and learning, the primary responsibility for finding the right materials to use and effectively using them in education lies with the institutions as well as the educators responsible for delivery of education (COL, 2011). Adoption of OER by educators will be truly effective only if it reflects a ‘change’ in their thinking

and actions. This requires a change in pedagogical practices as well as pedagogical beliefs of staff.

Bringing about this kind of change among educators requires the building of four core capacities. These are personal vision-building, inquiry, mastery, and collaboration (Fullan, 1993). In order to for the intended outcomes of an educational innovation to be achieved, it is essential to have changes in actual practices along three dimensions: the possible use of new or revised materials; the possible use of new teaching approaches; and the possible alteration of beliefs (Fullan (2007).

A study conducted at OUSL exploring the current pedagogical practices of educators and their preparedness to adopt OER revealed that awareness of OER was extremely low among educators (Karunanayaka, 2013). Existing pedagogical beliefs did not reflect a sharing culture. However, there was evidence of their preparedness and motivation to learn, which was a positive element towards achieving the kind of ‘change’ in pedagogical practices that Fullan is talking about. Integrating OER into teaching and learning requires a rethink of teaching and learning pedagogy such as the adoption of more “learning-centered” pedagogical designs such as Scenario-based Learning (SBL), which are based on the principles of situated learning (Naidu, 2010a). When this is the case, the possibilities and opportunities offered by ICTs and OER help to optimize the design of effective, efficient and engaging learning experiences (Naidu, 2010b). And this was a key objective of the work that is reported in this paper.

### **Research methodology**

The evaluation of the impacts of this work was conducted as an action research, which is described as a form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices, and the situations in which the practices are carried out (Carr and Kemmis, 1986). It comprised planning and implementing an intervention, designed as a professional development program on integration of ICT and OER in the course design and development process for teacher education at the Faculty of Education, and evaluating its impacts.

Action research is viewed as a cyclical process consisting of a spiral of steps, each composed of a cycle of *planning*, *acting*, *observing* and *reflecting* about the result of the action (Smith, 2001). Accordingly, the intervention that comprised a part of this work was planned as a professional development program in two phases: 1) Capacity building of teacher educators on adopting, adapting and integrating OER in the design of courses, and 2) Capacity building of teacher educators on the development of these courses as OER-integrated online courses. Participants in the project comprised 30 members of academic staff of the Faculty of Education. Through a series of workshops and related activities, the participants, in five course teams, actively engaged in the design and development of five selected teacher education courses with OER and ICT integration, and implementation and evaluation of these courses with small cohorts of students.

The key research question of an evaluation of its impacts was, how and in which ways this professional development program on the integration of OER and ICT in the course

design and development process has impacted, assisted and empowered teacher educators in relation to their work on education and training in the Sri Lankan education system. The following specific research questions guided the collection and analysis of data during the two phases:

1. The extent to which understandings, knowledge and skills on OER integration in the teaching-learning process and course design are developed among teacher educators?
2. The extent to which the quality of teaching-learning materials and procedures used by teacher educators is being enhanced?
3. How and in which ways changes have occurred in the pedagogical beliefs among teacher educators?
4. How and in which ways changes have occurred in the pedagogical practices among teacher educators?

The collection of data using a variety of techniques commenced with phase 1 and continued throughout the two phases. The development of concept maps was a key approach to the gathering of data. Participants were requested to create a series of concept maps at different stages of the process – at the initial stage, mid-stage and at the end, illustrating their understanding of OER and related concepts. These were accompanied by individual narratives explaining how their understandings may have changed over time. Self-reflections of staff on their experience of course design and development processes with ICT and OER integration were also collected. In addition, semi-structured focus group interviews were held with each course team to gather detailed information on their capacity building from different aspects.

Interpretive Phenomenological Analysis (IPA) was used as the methodological construct for analyzing the concept maps. This method enabled us to explore in detail how individuals perceive the particular situations they are facing and making sense of their personal and social world (Smith & Osborne, 2007). Our focus was on discovering the meaning of the experiences of each individual through the participants' and researchers' interpretations of their concept maps. A mostly qualitative approach was adopted using content analysis, coding/categorizing, identifying emergent themes and organizing them to establish meaningful interpretations.

## **Findings and Discussion**

The key focus of data collection and its analysis was about ascertaining the *impacts* of our interventions on participants, especially in relation to the integration of OER and ICT in the course design and development process in teacher education. Three major themes were identified that had an impact on the participants, under which data were organized: *Open Educational Resources (OER)*, *Scenario-based Learning (SBL) as a pedagogical design*, and *Online Learning Environment (OLE)*. Several sub-themes emerged under each theme. The findings are presented and discussed under the three major themes, addressing the research questions.

## Impact of Open Educational Resources (OER)

Analysis of the different versions of concept maps created by the participants, and their narratives revealed extensive developments in their understandings, knowledge and skills on OER integration in the teaching-learning process and course design. This is evident in Figures 1, 2, 3 and 4, which illustrate the first and final versions of concepts maps of two participants (PD1 and EC5), accompanied with excerpts from their narratives (Note: look at the increase in the number of concepts and the relationships among them from V.1 to V.3 in both examples).

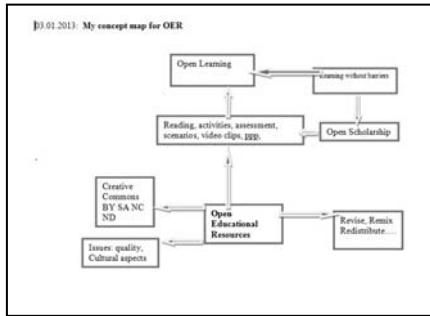


Fig. 1: Concept Map V.1 - PD1

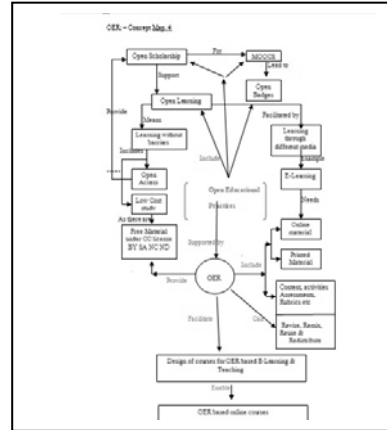


Fig. 2: Concept Map V.3 - PD1

“...The value of Open Scholarship is that it enables more and more people opportunities of learning. As Open Scholarship will not have many restrictions it would support Open Learning. MOOCs represent an instance of Open Scholarship as they offer opportunities for Open Learning to large numbers of people. Open Education Resources accessible under Creative Commons license become very important in that context. Therefore, Open Learning which is supported by e-learning requires design of courses based on OERs. Then OER based e-learning and teaching becomes a reality... I can see that my concept map is changing gradually. I think the factors that contributed to the changes are re-reading and reflection...” (IN-PG1)

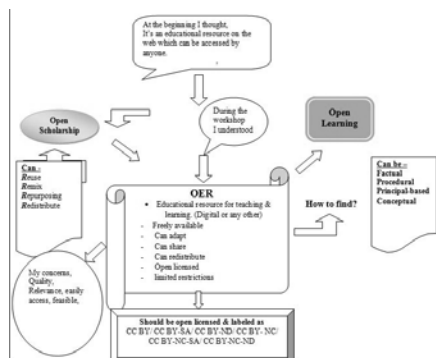


Fig. 3: Concept Map V.1 - EC5

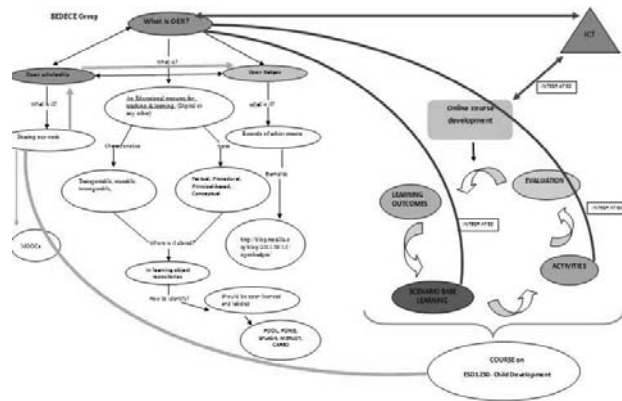


Fig. 4: Concept Map V.3 - EC5

“...The above concept map (V.3) attempts to illustrate the whole picture of what I have been learning from the very beginning of this project...The main concept is the OER.. In the other two concepts which are related to the OER shows, Open scholarship...So the link which shows the relationship indicates that OER connects both open scholarship and open badges...Then, how to integrate OER and ICT on designing an online course. The final output after integrating OER and ICT is the course that is being piloted at the moment...I feel it as an interesting innovating activity that gives me a kind of motivation heading towards the future education. The workshops gave me pleasure and enjoyment...This project gave me a lot of knowledge and very good experiences even though it was difficult to prepare my mind set with other work, but that was a really challenging task...” (IN-EC5)

Different versions of concept maps of participants clearly indicated that, in contrast with their first attempts which were very simple, focusing only on OER and with a few concepts and links, the final versions were a lot more complex with many more concepts around OER with links and cross links, showing relationships among concepts. Further, the self-reflections and focus group interviews too revealed how their thinking has changed and knowledge and skills have developed during the process.

“...First day I came to the workshop without any understanding of OER...But later when I participated actively, my understandings developed...Now I understand the concept of OER through the lens of course design concept. I could see so many interrelationships between different concepts...Actually my mindset is positive on designing and developing OER courses...” (SR - PS5)

“...Before I got involved in the training workshop I had a doubt about engaging in the new concept regarding OER. But on the first day I gained a lot of new ideas on OER. My perception of OER was that it enhances the open distance education for all. I learnt the concepts of Open Learning, Open Resource materials and Open Scholarship in the first, second and third sessions...Anyway, at the end of the day I was able to get the theoretical background related to the OER concept...” (SR-ME2)

The development of understandings on OER has also resulted in changes occurring in the pedagogical beliefs among the participants, as apparent by the following excerpts:

“...If we have gained something from education, we have an obligation, a responsibility to give back to society regardless of geographical, cultural barriers. Value principle of OER is mentioned as ‘education as a human right’... (SR-PS4)

“...OERs are very important for developing countries as they do not have much money to spend on teaching learning...We should have self- discipline when using OER and should not misuse them. We have to be very careful when using OER about accuracy of the information, and adjustments should be done according to our teaching-learning environments, and we should be able to identify what OER we need and what OER we need not...” (SR-PD5)

“...The term ‘Open Learning’ gives the meaning that learning is open, that is, unlike conventional learning, learning should be without restrictions. OER should be

resources which facilitate open learning. For the learning to be open, resources also should be available without restrictions...Are the people ready to share all what they have produced? Their thinking..? I feel this is a little bit extra-ordinary thing...” (SR-MA2)

With a change of mindset, the participants were motivated and determined to implement their new thinking and understandings with an increased confidence, despite various challenges anticipated.

“...As an educator, I can compose and adapt OER for my class. But I will have to face some challenges in the process of integrating OER into my teaching-learning process. Really my question is how we can assure Quality, Accuracy, and Credibility, of OER available in the internet...?” (SR-PD6)

“...I’m willing to use OER in my teaching – learning process and I think by using OER I can provide many opportunities to learners for self learning. It will help me to plan my teaching learning process well. I think as a lecturer working in an Open distance learning environment I should think about integrating OER into teaching learning process because our learners need more resources and it will help them to minimize some problems arise due to limited numbers of contact sessions...” (SR-MA4)

#### *Impact of Scenario-based Learning (SBL) pedagogical approach*

A significant amount of capacity building occurred among individuals in OER-based course design using the SBL approach, which was a novel pedagogical design for a large majority of the participants.

“...The course designing process gave a positive impact for me and it gave me knowledge, skills and helped me to change my attitudes and mindset in a positive way. Developing scenarios is a new experience for me. The experiences which I got from developing case studies helped me to develop scenario immensely. Through the process of course designing I came to know that activities and assessment should be in line with the scenario and acquired an ability to develop scenarios and activities and assessment according to that...” (SR - PS5)

“... First we identified key competencies for practitioners and formulated learning outcomes. After that developed scenarios and activities. We worked hard to get close alignment with activities scenarios and expected outcomes. It was not an easy task. I have realized the importance of the close alignment with activities, scenarios and learning outcomes. When I develop or revise course materials in future I have to pay more attention to this matter. Today’s workshop gave me hands on experience on how to tie activities, scenarios and outcomes. I can use this knowledge in future...” (SR-PS4)

It was evident by participants' reflections that the novel approaches introduced through SBL with OER integration have enhanced the quality in the processes used by them in course design and development. Especially, this impact has been vast upon the junior academics with limited experience.

"...Initially it was confusing to me. We didn't know anything about OER, and we had a task to build a course...It was very difficult to build scenarios, learning outcomes and linking with learning activities and assessments...Still we need to practice...From this workshop I got the knowledge not only finding OER, but how to create a course...I am a junior, fresh academic....This benefited a lot for me..." (SR-EC5)

"...I had very little knowledge...Challenging task for me is preparing scenarios, how to develop learning activities and assessments, how to integrate OER at different stages...? By actively participating in the workshops and getting advise from the seniors, I got more knowledge...I think it's a very important experience for us as junior academics..." (SR-MA4)

"...As a very experienced person...I can see that our young academics have developed the confidence and skills...not only on SBL and OER, but also their critical thinking, creativity, reasoning and reflective abilities have been improved. That is a good outcome..." (SR-ME1)

The participants realized the need for a well-designed learning environment supporting a 'learning-centred' pedagogy such as SBL, for effective OER and ICT integration, and have developed their capacity in doing so.

"...SBL is very practical because it provides the learner to think of his/her learning in a meaningful (may be usual, familiar) context. The learner can build his new thing on his own foundation (what he/she already knows) (we did that in the activity). The output is his/her own. Output can be shared with others if the learner wishes. It is a real learning. isn't it...?" (SR-MA2)

"...As a university academic I have to prepare to integrate OER in our teaching-learning process. We have to clearly understand concept of OER and have to integrate it in teaching learning process...Scenario is very important in OER. According to SBL concept we have to identify ZPD (Zone of Proximal Development) and we have facilitated the students to fill that gap ZPD through OER..." (SR-PD7)

The importance of having a "learning-centred" pedagogy to course design to make decisions about the effective integration of OER has been realized by the participants, through the hands-on experiences on developing their courses using the SBL approach. The changes that have occurred in their pedagogical beliefs in turn have effected changes in pedagogical practices among the participants.

"...This experience is a 'turning point'... We were exposed to a new way of working...this is a change from conventional ways. Promote sharing ideas more



openly ...We are in the beginning of a path...The challenge is, shifting from a competitive learning culture. We feel the change...People are being more open and free...We share with each other...you are not penalized...all are benefited...Now we are changed...we have to change our students too..." (FG-MA Team)

"...We need to introduce this kinds of mechanisms...But when we try to integrate OER I feel there are some challenges in our Sri Lankan context – cultural and behavioural...Mindset should be changed...With whatever constraints we have to move forward...We should try our best to cope with world of work and challenges..." (SR-ME2)

### *Impact of Online Learning Environment (OLE)*

The requirement to design and develop an online learning environment for the selected course was another task that had had a great deal of impact on further developing participants' thinking and their competencies.

"...OER can be viewed as a technical aspect, which you can incorporate into the course materials you are developing, to support both teachers and learners...It is an opening door to an enormous world, which provides us with the opportunity to find and incorporate resources...We have a challenge to create an online learning environment...It will be challenging to our students...when the course is put online, rather than giving only in print...Their thinking, imagination, creativity can be improved...It will expedite interactions...We need to take this step to change..." (FG- ME Team)

The final online courses of the five teams, using SBL approach with OER integration, were a clear indication of the enhancement of quality in teaching-learning materials developed by the participants. Screen captures of home pages of two online courses developed by two teams are given in Figures 5 and 6.

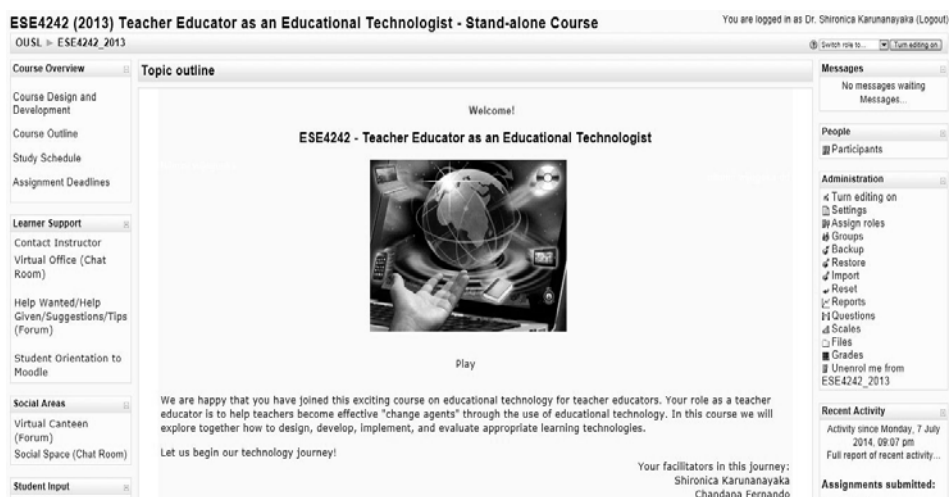


Fig 5 - Online Course – MA Team

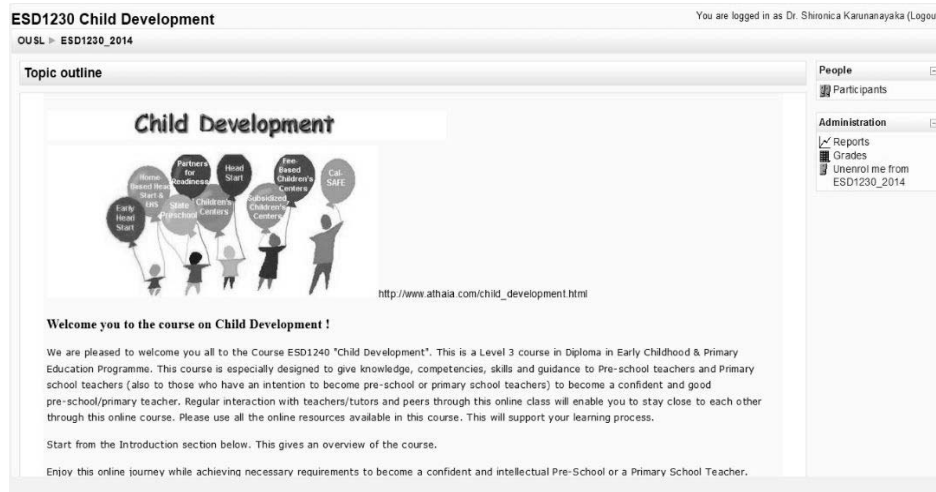


Fig 6 - Online Course – EC Team

The whole exercise of course design and development using SBL approach, with ICT and OER integration, during this intervention, has empowered the participants to engage in their professional role as teacher educators, with increased confidence and motivation. Further, the enhancement of team spirit through collaborative and co-operative efforts was vastly visible among all five teams.

“...Using SBL, OER and online learning we can make our students self-regulated learners...We are designing the course in a student-centred way...focus is on ‘learning’. OER are used to facilitate learning...and enrich the learning experience...There are many ways in which you can integrate OER...it has to be in-built in the course design...SBL is helping us to integrate OER into teaching and learning in a more effective way...Without ICT it will be difficult to do this...Learners will be responsible and feel that he/she is actually learning...The gap/distance with the teacher in the ODL system will reduce...teacher-student relationships will develop...” (FG-MA Team)

“...I am happy to be a part of this workshop, because I feel it is successful in achieving our goals. I think that success is not only because of our commitment, but contribution of all that helped us to reach our objectives...I feel the satisfaction of our success because of all your contributions...” (SR-MA2)

“...I am really happy...The main thing is, we are working as a team. The whole Faculty is here and we are developing our own capacity in different ways, together, as a ‘learning community’. We are engaged in this process, and we can take this back to the field...Now we are motivated...I feel my thinking is developing day by day. That is what we need as academics...” (SR-MA1)

## Conclusions and Way forward

This experience has had a significant impact on the participants in terms of their professional development as teacher educators along the following lines: Course design using the SBL approach; Searching, identifying, evaluating and integrating OER into course design; and Designing and developing an online learning environment (OLE).

Despite various challenges faced by the participants in all three aspects- OER, SBL and OLE, which were novel areas to a majority of them, the facilitative and collaborative team efforts helped them overcome barriers and move towards achieving targets with motivation and commitment.

During the process, there was evidence of a significant amount of impact on capacity building of participants including development of knowledge, skills, attitudes and change in mindsets. This comprised enhanced knowledge of OER, OEP and related concepts, attitudinal changes, new perceptions, skills in searching, identifying, evaluating and integrating OER and ICT into course design using a situated learning approach, through collaborative team work.

This intervention led to the adoption of a reformed culture towards the use of OER in education and training among the participants, who are teacher educators. This will certainly in turn have a cascading effect on the development of other courses in the teacher education programs with OER integration in the Faculty of Education, resulting in the enhancement of quality of its teacher education programmes.

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# **Training needs assessment for teaching staff in open universities and dual-mode higher education institutions in Asia**

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## **ABSTRACT**

There has been phenomenal expansion of distance education (DE) in Asia in the last four decades. There are about 70 single mode open universities in Asia catering to the largest number of adult learners around the world. Many higher education institutions in Asia are also increasingly using distance and online learning to provide increased access to quality education. In the recent years, the use of information and communication technology (ICT) in distance education has been increasing due to the affordances of the technology to support the inherent nature of distance education to support anytime, anywhere education. This demands changing role of faculty in designing and delivery of distance education programmes. While there is a growing acceptance and use of technology by teachers, there is also a strong need to provide faculty with new training to become more effective in imparting knowledge through open and distance learning (ODL). As the faculty in most ODL institutions are drawn from conventional face-to-face teaching institutions, the institutions normally adopt in-service training to staff development. Recognising the importance of training, the Commonwealth of Learning organised a roundtable on “Training Distance Educators” in 1990. Staff training needs at the regional level were first articulated in 1994 in a workshop on training organised by the Commonwealth of Learning. Due to technological advancements, and new ways of learning and professional development opportunities, it is important to undertake a systematic training needs analysis of teaching staff serving distance education in the Asia. The study will help in designing appropriate training programmes and improve performance goals in the distance teaching institutions.

This paper report on the findings of an online research survey conducted among the faculty of the distance teaching institutions located in Asia. The survey focusses on: (a) importance of training, (b) perceived gap in competencies, (c) immediate and long-term training needs, and (d) preferences of mode of training. The objectives of the study were: (a) to identify the gap between current levels of competencies of teaching staff, and (b) to identify priority areas of training. Results of the study indicate that respondents prefer training programmes outside their organisations, and also prefer online programmes of short one week duration. The study also lists area of priority training: Developing /using Open Educational Resources, Open Content Licensing/Copyright, Design and development of educational multimedia, Designing flexible skill training programmes, Quality assurance, Emerging trends and technologies in ODL, Developing Online learning/ eLearning content, ICT based delivery systems (use of LMS, etc), Research methodology for ODL, and Costing open and distance learning).

*Keywords: Training needs, Open universities, Teacher competencies, Asia*

## **Introduction**

In the recent years, the use of information and communication technology (ICT) in distance education has been increasing due to the affordances of the technology to support the inherent nature of distance education to support anytime, anywhere education. This demands changing role of faculty in designing and delivery of distance education programmes. While there is a growing acceptance and use of technology by teachers, there is also a strong need to provide faculty with new training to become more effective in imparting knowledge through open and distance learning (ODL). As the faculty in most ODL institutions are drawn from conventional face-to-face teaching institutions, the institutions normally adopt in-service training to staff development. The quality assurance in ODL becomes more complex with additional tools of ICT (Rashid, & Iqbal, 2010). Teaching staff in ODL institutions is the backbone of its quality teaching and learning support. Recognising the importance of training, the Commonwealth of Learning organised a roundtable on “Training Distance Educators” in 1990. Staff training needs at the regional level were first articulated in 1994 in a workshop on training organised by the Commonwealth of Learning. Due to technological advancements, and new ways of learning and professional development opportunities, it is important to undertake a systematic training needs analysis of teaching staff serving distance education in the Asia. It is necessary to understand the current status of knowledge, skills and attitudes of teaching staff in ODL system to develop appropriate strategies to improve their performance.

Asia is the world’s largest continent and has more than 60 percent of the world population. Majority of adult learners in the world belongs to Asian region. There are more than 70 single modes open universities in the region, apart from many dual mode teaching institutions that use distance and online learning systems to deliver education. ODL institutions need to remain up-to-date in technology and pedagogic practices to be competitive and serve the needs of the learners. Therefore Continue Professional Development (CPD) of teaching staff is crucial of every ODL institution. It has been identified that notable improvements in education almost never takes place in the absence of professional development (Guskey, 2000).

## **Review of Literature**

A review of training needs assessment (TNA) studies found that the literature is dominated by ‘supply-led’ players i.e. trainers and academics, but with an unexpectedly strong emphasis on the demand-led aspects of the organisation, especially its business results and growth (Chiu et al, 1997). Ferreira and Abbad(2013) reviewed TNA literature and found that (a) there is little agreement on how to measure training needs; (b) most of the current TNA models and methods are reactive and do not consider contextual factors and multiple levels of analysis in proactive way; (c) there are gaps in TNA and a need for theoretical definitions; (d) there is little concern with building theories and concepts related to TNA.

Rouda and Kusy (1995) proposed steps for TNA (i) Performing a ‘gap analysis’; (ii) identifying priority areas; (iii) identifying causes of performance, problems and opportunities; (iv) identifying possible solution and growth opportunities. They further stated that training is the only answer to attain desired level of solution, if problem exists in the organisation. In a study of pre-service training needs of teachers, RomiandYoma (2006) found gender influenced both attitudes and self-efficiency beliefs.

A comprehensive training impact study in the Commonwealth by Lockwood and Latchem (2004) suggests that training in open and distance education in the developing countries needs to be through a mix of face-to-face delivery by external and regional/local staff developers and online or distance education, some of which still needs to be print based. Faculty expressed mixed views on methods of training. They preferred workshops provided by overseas and/or regional or national experts in distance education followed by distance training provision, Internet/ Web-based training, computer-based training and. The important topics for training identified were identified: curriculum and course development, instructional design/scripting for audio-visual material, managing open and distance learning systems, and establishing quality assurance methods. In addition to these topics, costing open and distance learning, assessing learner performance and diagnosing learners' needs and circumstances, instructional design/scripting for print, tutoring/counselling, and evaluating open and distance outcome topics were also identified as important areas (Lockwood, & Latchem, 2004). Okonkwo (2012) examined a need assessment of ODL educators to determine their effective use of Open Education Resources (OER) and found that educators have not really embedded OER in teaching and learning, but they are very eager to be trained in the rudiments of OER and wish to employ them thereafter. The results indicate there is an urgent need for professional development to include training on OER for educators.

The review of literature revealed that there are not enough studies on TNA at a regional level in the field of ODL. Therefore, the present study is timely and appropriate to assist ODL institutions prioritise CPD and relevant training programmes.

### **Objectives of the Study**

The objectives of the study are to: (a) identify the gaps between current levels of competencies of teaching staff, and (b) identify priority areas of training.

### **Research Methodology**

The survey was conducted with the main focus on the teachers of ODL institutions located in Asia. An online survey instrument was administered among purposively selected sample of 968 teachers working in ODL institutions located in India, Pakistan, Bangladesh, Malaysia, Maldives, Sri Lanka, South Korea, Thailand and Indonesia during May and June, 2014. The questionnaire was divided into 9 parts. Part 1: Personal profile of respondents; Part 2: Importance of training; Part 3: Self-rating of competencies; Part 4: Teachers immediate training needs (immediate), part 5: Training needs (long term); Part 6: Training needs of colleagues/co-workers; Part 7: Training type preference; Part 8: ICT Access and Use; and Part 9: Teacher's comments/suggestion related to training. Researcher developed this conceptual framework on the basis of their working experience as teachers in ODL system. This framework shows necessary dimension for effective performance of teacher in ODL system. The questionnaire was pilot tested among 16 teachers of ODL institutions located in India, Sri Lanka and Malaysia. Some items in the instrument were re-designed after receiving the comments from the teacher before administering the questionnaire online.

Only 61 filled in questionnaires were received by 31<sup>st</sup> July, 2014. Follow-up emails enabled another 23 more responses. The finding of the study is based on the 84 filled in responses received. However respondents had skipped some of the questions, and

therefore, the analyses are based on the responses to the specific questions. As the response rate is low, we understand that it would be hard to generalise the findings of the study. However, considering this as one of the limitations and taking into account the responses from the diverse groups, the findings can be considered representative of the population it surveyed. Nevertheless, the paper is based on preliminary analysis of the data, and we are yet to analyse all the variables, especially the country-wise data.

## **Results and Discussions**

### *Respondents' profile*

The results presented in Table 1 revealed that majority of the respondents belonged to middle level academic (37.97%) followed by entry level academics (34.12%) and senior level academic (27.84%). Discipline wise analysis shows representation from all areas: Social Sciences (32.8%) followed by Management and Commerce (16.4%), Sciences (14.9%), Engineering and Technology (10.4%); Humanities (9.0%); Computer and Information and Science (7.5%); Health Sciences (4.5%); and Agriculture (4.5%). There were 51.9% male and 48.1% female respondents, showing almost equal responses gender-wise. Majority of the respondents had Ph.D. qualification (54.4%) followed by Post Graduation (34.2%) and M.Phil (12.3%). A quarter of the respondents were in the age group of 31-35 years, followed by 21% in the age group of 41-45 years, 20% in the age group 36-40 years, and 15% in the age group of 46-50 years. The respondents had substantial years of experiences in the ODL institutions with 44.87% having between 2-5 years and 29.49% having 6-10 years of experience in their present institutions. While over 85% had more than 6 years of teaching experiences, about 51% had teaching experiences in ODL institutions for less than 5 years, and the rest had over 5 years experiences in teaching through ODL. The respondents are quite representative, and cover all age groups, experiences, and gender. About 80% respondents had also received some kind of specialized short term training in distance education, though only about 40% has a formal qualification in ODL.

### *Importance of Training in ODL*

Responses in the survey indicate that teachers in ODL institutions consider training as an important activity for all the areas of distance education. While very high importance had not been accorded to all of the topics in the aggregate data, respondents do give high importance to many of these topics (see Table 2). The only area that received score below 3.5 is 'basic television production', which indicates that respondent's think this is of average importance. This may be due to easy availability of low-cost video cameras. Moreover, video production skills needed in distance education has been undergoing changes with the use of short less than 10 minutes lectures.

### *Self-rating of Competencies*

We tried to know how the respondents rate their own competencies for the important areas of training identified. While self-rating does not give the true skill-gap understanding of individuals, it is important as a predisposition to participate in a suitable training programme. Moreover, as the study did not intend to identify individual respondents, there is strong possibility of self-reflection of the respondents in the results of the item in the questionnaire. For analysis of the responses, we interpreted low mean score as low competencies of the respondents, and therefore, high need for



training in that particular area. Table 3 list the areas, where the respondent rated themselves below 'Good', meaning they are either satisfied with their competencies or their skills need improvement in that particular area. The areas on which respondents felt deficient are open educational resources, eLearning, audio-video, radio, multimedia production, etc. It is interesting to note here that 'basic television production' received the lowest score for competencies, though respondents also rated this as the least important area. This is not really contradictory, and we believe that a low rating of competency in this area is congruent with their thinking about less importance of this topic.

#### *Short and Long-Term Training Needs*

Table 4 and 5 show the immediate and long-term training needs expressed by the respondent teachers. Training on developing eConcent emerged as top priority areas for short-term needs, while quality assurance emerged as a long-term needs, which is also features in the short-term need list. This establishes the concern of teachers for quality assurance of ODL courses. Similarly ICT-based delivery systems, emerging trends in ODL and research methodology feature on both the table, indicating the need for training in these areas on an on-going basis. Immediate training needs are also in the area of OER and open licensing, indicating the readiness of the respondents to undergo training in these areas, if suitable training programmes are available to them. Teachers also expressed immediate need for training in the areas of A/V production, and instructional design, which affects their day-today work. However, the long-term training needs are more in the areas of managing ODL systems, collaboration, project management, costing etc., which are more aspirational as these will be useful for career progression in administration and management of ODL systems.

#### *Preferred Types Training*

The data presented in Table 6 indicates that majority of the respondents prefer study tour to reputed ODL organizations, and want to attend training outside their own organization and country. While visiting other organizations is a good way to learn best practices, its contextual adaptation has been a major problem. We see increased choice for training in another institution/country as a "tourist" approach, and lack of faith on the capacities of internal staff developers in ODL institutions. Nevertheless, respondents show interest in a variety of training programmes, which is highly encouraging for staff development programmes to use a balanced approach to various types of training and keep the motivation level of the teaching staff to accept and undergo training in ODL.

We also tried to understand the preference for duration of training programmes in both face-to-face and online environments. About 45% respondents preferred 4-5 days training programmes followed by 1-3 days (26%), 6-10 days (13%), 11-15 days (10%) and more than 15 days (7%). About half of the respondents (49.3%) preferred online training programmes of about one week duration, while 33.3% indicated they would attend online training programmes of 2-4 weeks duration. Respondents also gave very high preference to online courses conducted by in-house faculty, other reputed faculty/organisation and online synchronous and asynchronous workshops.

Table 1: Respondents' Profile

<b>Respondents' Profile</b>	<b>Percentage</b>
Designation and Position (n=79)	
(a) Middle level academic	37.97
(b) Entry level academics	34.12
(c) Senior level academic	27.84
Teacher's subject/discipline of teaching (n=67)	
a) Social Sciences	32.84
b) Management and Commerce	16.42
c) Sciences	14.93
d) Engineering and Technology	10.45
e) Humanities	8.96
f) Computer and Information Science	7.46
g) Health Sciences	4.48
h) Agriculture	4.48
Gender distribution (n=81)	
(a) Male	51.85
(b) Female	48.14
Highest Qualification (n=73)	
a) PhD	53.42
b) MPhil	12.32
c) Post Graduation	34.24
Age-Group (n=81)	
a) 26-30 years	4.94
b) 31-35 years	24.69
c) 36-40 years	19.75
d) 41-45 years	20.99
e) 46-50 years	14.81
f) 51-55 years	7.41
g) 56-60 years	7.41
h) 61-65 years	1.23
Employed at the present university/institute since (n=78)	
(a) Less than one year	7.69
(b) Between 2 to 5 years	44.87
(c) Between 6-10 years	29.49
(d) Between 11-15 years	8.97
(e) More than 15 year s	8.97
Total teaching experience (n=81)	
a) Below 5 years	13.58
b) 6-10 years	34.57
c) 11-15 years	24.69
d) 16-20 years	12.35
e) 21-25 years	11.11
f) Above 25 years	3.70
Teaching experience through distance education (n=80)	
a) Below 5 years	51.25
b) 6-10 years	31.25
c) 11-15 years	11.24
d) 16-20 years	2.50
e) 21-25 years	2.50
f) Above 25 years	1.25

Table 2: Importance of various areas of training related to distance education

Answer Options	Response Count	Mean
Understanding of open, distance and online learning	81	4.40
Understanding learner needs and circumstances	80	4.46
Setting course objectives	80	4.26
Curriculum/ Course planning and development	81	4.40
Instructional design/ writing print materials	81	4.35
Designing flexible skill training programmes	81	4.14
Editing of print materials	81	3.98
Scripting of AV materials	80	3.84
Design and development of educational multimedia	80	4.04
Online learning/ eLearning	80	4.15
Developing/Using Open Educational Resources	80	4.09
Basic audio/radio production	80	3.53
Basic television production	81	3.43
Computer and Internet skills	80	4.33
Academic counselling	80	4.14
Student support services	81	4.19
Assessment of learner performance	81	4.25
Library and information management	81	3.79
Costing open and distance learning	80	3.66
Programme and course evaluation	81	4.21
Management of open and distance learning	81	4.14
Quality assurance	80	4.39
Research methodology for ODL	80	4.29
Training skills	78	4.19
Teleconference and presentation skills	80	4.03
Interpersonal skills	81	4.04
Leadership skills	79	4.09
Time management	81	4.21
Project management	80	4.10
Copyright	80	4.16
Helping students to be self-directed learners	80	4.40

Table 3: Areas of Low Self-rating of Competencies in ODL(Below Good ranking)

Answer Options	Response Count	Mean
Designing flexible skill training programmes	79	2.97
Scripting of AV materials	78	2.38
Design and development of educational multimedia	78	2.41
Online learning/ eLearning	77	2.68
Developing/Using Open Educational Resources	78	2.65
Basic audio/radio production	78	2.12
Basic television production	77	2.08
Library and information management	78	2.73
Costing open and distance learning	77	2.40
Copyright	76	2.86

Table 4: Top Short-Term (6-12 months) Training Priority Areas

Areas of Priority	Percentage	Frequency
Developing Online learning/ eLearning content	42.9	36
Emerging trends and technologies in ODL	39.3	33
ICT based delivery systems (use of LMS, etc)	34.5	29
Design and development of educational multimedia	31.0	26
Quality assurance	29.8	25
Developing audio/video materials	29.8	25
Instructional design/ writing print materials	22.6	19
Developing /using Open Educational Resources	21.4	18
Open Content Licensing	21.4	18
Designing flexible skill training programmes	19.0	16
Research methodology for ODL	19.0	16

Table 5: Top Long-Term (36 months) Training Priority Areas

Areas of Priority	Percentage	Frequency
Quality assurance	36.9	31
Emerging trends and technologies in ODL	26.2	22
Managing ODL systems	21.4	18
Collaborative models of content /programme development	21.4	18
ICT based delivery systems (use of LMS, etc)	20.2	17
Research methodology for ODL	19.0	16
Project management	19.0	16
Costing open and distance learning	17.9	15
Curriculum/ Course planning and development	17.9	15
Developing Online learning/ eLearning content	17.9	15
Community development and extension	17.9%	15

Table 6: Respondents' rating of preference for the type of training modes

Answer Options	Number of responses	Mean
In-house workshop by in-house faculty	67	3.46
In-house workshop by external faculty	66	3.98
Workshop outside your institute, but in your country	66	3.85
Workshop outside your institute, outside your country	65	4.24
Teleconference based workshop	68	3.43
Self-learning through print materials	64	3.59
Self-learning through multimedia CDs	65	3.75
Self-learning through web-based resources	66	3.70
Online courses conducted by in-house faculty	67	3.28
Online courses conducted by other reputed faculty/ organization	67	3.97
Online but synchronous workshop	67	3.53
Online and asynchronous workshop	63	3.39
Attachment to reputed ODL organizations	67	3.91
Study tours to reputed ODL organizations	67	4.15
Project based training	66	3.98
Joining Massive Open Online Course	66	3.78

Table 7: Access and Use of ICT Tools

<b>ICT Access and Tools</b>	<b>Frequency</b>	<b>Percentage</b>
Use of Computer (n=71)		
Daily	69	97.2
Alternate days	1	1.4
Irregularly	1	1.4
Place of Access to Computer (n=71)		
Office	5	7.0
Home	3	4.2
Both office and home	63	88.7
Use of Internet (n=71)		
Daily	67	94.4
Alternate days	2	2.8
Irregularly	2	2.8
Place of Access to Internet		
Office	8	11.4
Home	1	1.4
Both office and home	61	87.1
Type of Internet Connection (n=71)		
Dial-up connection	8	11.3
DSL connection	20	28.2
Leased Line (wired)	14	19.7
Leased Line (wireless)	15	21.1
Mobile devices	14	19.7
Mobile Device Access (n=61)		
Simple mobile	20	29.0
Smartphone	47	68.1
Tablet (Phablet)	2	2.9
Use of Web 2.0 Tools (n=66)		
Blogs	29	43.9
Wikis	26	39.4
Social Bookmarking (e.g. delicious, Digg, etc.)	8	12.1
Video Sharing (e.g. YouTube, Vimeo, etc)	29	43.9
Presentation Sharing (e.g. Slideshare, etc)	36	54.5
Social Networking (e.g. Facebook, etc.)	52	78.8

Table 8: Comfort level regarding the use of computer related activities

<b>ICT Competencies</b>	<b>N</b>	<b>Mean</b>
Word processor (e.g. Word)	70	3.97
Spreadsheets (e.g. Excel)	70	3.67
Presentation (e.g. PowerPoint, Prezi, etc.)	70	3.96
Email	70	4.30
Using Search Engines	70	4.03
Databases	69	3.51
Multimedia authoring	70	2.87
Graphic editing	70	2.39
Digital audio	69	2.30
Video editing	70	2.06
Web page design	69	2.09
Learning Management System	69	2.64
Web 2.0 tools (Wikis, Blogs, Social networking and sharing tools)	70	2.81

### *Accessibility and Use of ICT*

The use of ICT in ODL system is increasing day by day. Teacher can guide, teach, take tutoring classes and monitor his/her student's performance through ICTs. Therefore, he/she need continuous enhancement of his/her knowledge, skill for ensuring quality within ODL system. Access and use of ICTs are necessary for participating in any online training programmes. Table 7 shows high access to computer and Internet by respondent teachers. Many use smartphones, and access Internet using broadband and mobile connections. There were also active users of Web 2.0 tools. Table 8 also shows that the respondents have advanced level user of email web search engines, word processing, and presentation software. While these findings could be due to the fact that the data in the study is based on online survey, and therefore the participants have more ICT skills, the findings also indicate that they are basic level users of LMS, Web 2.0 tools, and digital audio video editing tools that have become essential for teachers in ODL systems.

### *Common Priority Area*

The study found that using ICTs effectively is the major training needs of the teachers in ODL institutions. While they prefer training outside their organizations, and study tours, they do have high access to technology, and are also willing to join a variety of training programmes including online training programmes of one-week as preferences. We have presented an aggregate data of the study, and believe that planning and development of training programmes in the institutions need further local understanding of the needs and requirements. However, our analyses of the findings clearly show a pattern of needs in the Asian ODL institutions. Table 9 shows top priority areas of training needs to focus for developing capacities of teachers in ODL institutions of Asia.

Table 9: Common Priority Training Areas

<b>Areas of Priority Training Needs</b>	<b>Short-term</b>	<b>Current deficiencies</b>	<b>Long-term</b>
Developing /using Open Educational Resources	Yes	Yes	
Open Content Licensing/Copyright	Yes	Yes	
Design and development of educational multimedia	Yes	Yes	
Designing flexible skill training programmes	Yes	Yes	
Quality assurance	Yes		Yes
Emerging trends and technologies in ODL	Yes		Yes
Developing Online learning/ eLearning content	Yes		Yes
ICT based delivery systems (use of LMS, etc)	Yes		Yes
Research methodology for ODL	Yes		Yes
Costing open and distance learning	Yes	Yes	Yes

### **Conclusion**

To conclude that findings of the study indicate that respondents prefer training programmes outside their organisations, and also prefer online programmes of short one week duration. The study also lists area of priority training: Developing /using Open Educational Resources, Open Content Licensing/Copyright, Design and development of educational multimedia, Designing flexible skill training programmes, Quality assurance, Emerging trends and technologies in ODL, Developing Online learning/

eLearning content, ICT based delivery systems (use of LMS, etc), Research methodology for ODL, and Costing open and distance learning).

While the data analysed in this study is based on the respondents' views 'from the few ODL institutions in Asia who responded to our questionnaire, the findings of the study may not be generalized, and treated as preliminary findings. However, the study contributes significantly to understanding of the training needs of teachers in Asian ODL institutions. Findings of the study suggests that policy makers, and trainers in ODL institutions need to develop capacity building programmes that are relevant and appropriate to the needs of the teachers. As education and training is considered an investment in the people, we believe that investment in people will lead to empowerment of people, which is the key to success (Aslam, 2000). Therefore, as the technology keeps changing, ODL institutions need to focus on the priority training areas and offer opportunity for continuous professional development of teachers. The findings of the study are an indicator of the training needs, and would strengthen development of appropriate training programmes.

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# Entrance level challenges of ODL faculty members

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## **Abstract:**

Education system is considered as an important pillar of any country and in this system teachers are the ones that are directly related to the delivery of education among the masses. ODL (open & distance learning) operates on a different teaching methodology where students are not under direct supervision of teachers, similarly ODL staff requires specific skills to perform in this system. Therefore, individuals entering the ODL as faculty possess some skill sets based on the previous experiences. This prior learning either results into effective entrance to ODL or may create hindrance. This study focuses on identifying the challenges faced by the faculty at the time of entrance in ODL through semi-structured interviews. Prior experience in education (traditional/ODL), non-teaching or with no experience is analyzed for the entry level issues experienced by ODL faculty. Considering the study objectives, data was collected from the faculty operating in ODL (distance learning) within Pakistan. Identification of such challenges of staff is beneficial in developing proper trainings. Well set training programs make the entrance of new incumbents smooth with enhanced performance efficiency. Such well-crafted training programs play a significant role in staff development, for which this study suggests major guidelines for ODL to implement.

## **Keywords:**

*Open and Distance Learning (ODL), Staff Training, Knowledge Skill Attitude (KSA)*



## **Introduction:**

Education system is an important factor for the development of any country. If education system is fully organized only then it can contribute to the society in a positive way. Nowadays, technology is playing a major role to educate the masses. In most of the developing countries the focal point of educational institutes is shifting from conventional to open and distance learning (ODL). ODL is helpful in improving the access to education in different regions (Siaciwena, 2006).

ODL system is similar to traditional educational systems as in ODL teachers and students interact with each other through different virtual modes of communication (audio, video conferencing, webinars, emails etc.). ODL system offers different degree programs and short courses to graduate and undergraduate similar to traditional mode.

According to Young (1998), from the last two decades educational institutes are trying hard to reduce the costs and to produce quality education with the help of innovation in teaching methods. In this regard, teachers play an important role for the development of ODL, as they are in direct contact with students, so they are considered as the backbone of ODL. While developing any institutional policy the position and status of teachers in that institution should be considered. Teachers in ODL may face challenges due to variation of tasks if they came from traditional system of education, are fresh graduates or from non-teaching background.

## **Objectives of the study:**

Multiple studies (Mujibul, 2008; Burge, 1993; Jaffee, 1998; Olcott and Wright, 1995) have been conducted on ODL to check the efficiency and effectiveness of the system but little attention has been given to the teachers that are playing an important role in ODL. The basic aim of the study is to check the issues and challenges that have been faced by the teachers in ODL as well as how these constraints are affecting their career development.

## **Significance of the study:**

The study is important for the policy makers of ODL to make adjustments in their policies by considering the problems and issues of faculty members. This study is helpful for them to understand the perceived situation and actual experience of the faculty members in ODL and also the reasons for dissatisfaction from the system. Furthermore, findings of the study assist to enhance the motivation and loyalty of faculty with ODL. Open and distance educational institutes are working on two different dimensions but with a common aim to educate the masses. This study has considered the inclusion of faculty with different backgrounds to see whether the change of organizational setup and cultural values have any impact on the experience and opinion of ODL faculty.

## Literature review:

The term Open and Distance education refers to a system where interaction between two persons will take place in the presence of electronic devices i.e. internet, emails, web conferencing, teleconferencing, Skype etc. (Mujibul, 2008; Burge, 1993). So, advancements in communication and technology have provided a pace for open and distance learning institutes. As per the findings of Schmidt and Gallegos (2001), the basic difference between conventional and ODL mode of teaching is direct interaction between teachers and students. The class room bounding has been disappeared and students regardless of region (local, national or even international territories) can have better opportunities to access the educational institutes through such technologies worldwide. As a result of all these efforts, distance learning programs of universities are rapidly expanding globally. The technological advancements and growth in open and distance mode of learning is defined by the United States Distance Learning Association, 1998 as “the acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance”. According to this definition, the class room paradigm is changed which have been adopted by the teachers and all educational institutes for a long time. According to Jaffee (1998), due to technological changes in R&D (research and development) facilities, higher education is facing substantial challenges. Open and distance education system is a worthwhile mechanism through which teaching can be shifted from physical to virtual presence (Simonson, Schlosser, & Hanson, 1999). This virtual presence is developed through technological instruments i.e. slides, radio, tape, recordings and films in the form of short clips have been in use since 1900s (Reiser, 1987).

Although technological advancements are taking place in the world, educational paradigm has been shifted to open and distance learning institutes, borders and territories are vanishing, educational methods are no more limited to boundaries; students are not segregated on the basis of local, national or international territories, educational models are expanding day by day and student categories are more diversified as compared to previous methods of teaching, but still the key role of teachers is continuously increasing with the passage of time. Despite of the fact that faculty members of an educational institute are crucial factor, not only for the success of technology based implemented programs, but for overall institutes, they are ignored in much of the studies conducted on ODL (Beaudoin, 2002). According to the Olcott and Wright (1995) the major responsibility of teaching quality, control over course content, improvements in teaching methodologies, the overall efficiency and effectiveness models of education system are based upon the qualities and capabilities of faculty members of educational systems. Not only in conventional mode but specifically in distance learning institutes, the faculty must be familiar with the available technologies, different modes and tactics that could be used in teaching practices; so that they may be able to incorporate such changes into their own teaching style and strategies. In case of distance learning teachers need to change the typical class room model and should develop the new tactics and adopt new strategies to reach a distant learner (Olcott and Wright, 1995). Some of the researchers (Dillon and Walsh, 1992 and Clark, 1993) observed that faculty members of open and distance learning educational institutes (ODL) have to face a number of challenges when they have to accommodate themselves in a new mode of teaching as compared to previous class room styles. Corporation for Public Broadcasting submitted a report to Congress in 1992 that faculty members have

to understand the changing needs of technology, learning modes and interactive styles. In addition to these, the most important function for faculty members is the operationalization of technology oriented products to enhance the effectiveness of teaching practice specifically in case of ODL. Carl (1991) reported that most of the time faculty members from the conventional mode of teaching experience more problems in ODL system. Clark (1993) and Olcott and Wright (1995) identified that in distance education system more planning is required to teach the students because the class strength is generally more than the conventional system. Other factors that may contribute to the challenges of the faculty are the lack of trainings, institutional support, lack of proper reward and incentives system, loss of creativity and innovations, less control over the curriculum and lack of time available for proper planning etc. (Clark 1993; Olcott and Wright 1995).

To be an effective teacher in ODL, the basic learning of tactics to teach in an online mode of communication is very much crucial (Johnson & DeSpain, 2001; Bennett & Bennett, 2002). Moore (2005) reported that the environment plays very important role in the efficiency of the workers. Environment can also affect the performance and efficiency of ODL faculty. Clark (1991) stated that it is difficult to find cooperative, adaptive learners, enthusiastic and motivated non-teaching staff members and more difficult is to convince them to join the ODL education system. In his study Parker (2003) identified that faculty members mostly attracted to teach in the ODL system just because of incentives which are also offered them in conventional mode of teaching (intrinsic rewards).

From all these studies it is evident that investing the issues of faculty members is important for the development of both ODL and conventional mode. By analyzing the reasons causing issues by making policies and by providing solutions to these problems an organization can retain its employees for longer period of time; the capital assets of the organization. In his study Rogers' (1995) provided a framework which educational institutes can use to analyze the problems of faculty and make policies to fulfill the needs of students. Kotter (1996) also highlighted the importance of faculty development programs and models that are efficient and complete. According to Edmonds (1999) in technological advancement era all faculty development programs should not target only skills, knowledge and attitude enhancement activities but to consider educational policies and support structure services. So, complete analysis of problems and their solution should be the priority of ODL to improve the success and efficiency of institutes. As per the view of Brown & Plenert (2006), analysis to find out the gaps in efficiency is very useful in order to increase the productivity because dissatisfied employees in ODL may increase this gap instead of improving the efficiency and performance. It is rightly said by the Wilson (2005) that to increase the credibility of the educational institute faculty issues should be addressed.

### **Research methodology:**

The objective of this study is to describe the challenges ODL faculty face at the time of entrance in ODL. The appointed faculty either have a prior experience or with no previous experience. Therefore, the encountered challenge varies for the ODL faculty based on their previous experience. To examine this difference in entry level challenges ODL (online) faculty has been divided into three categories; with no prior experience,

experience of traditional teaching and non-teaching experience. As the study targets the ODL faculty therefore, its defined population is teachers of ODL (online) mode of education in Pakistan. To meet the objectives of study ODL teachers with no prior experience, teaching experience and non-teaching experience are selected through purposive sampling. The selected sample of 12 individuals was investigated through semi-structured interviews. For semi-structured interviews 12 sample size is considered appropriate as Kuzel (1992) considered 12-20 interviews enough to obtain reasonable amount of data.

## **Discussion:**

### **Non-teaching → ODL:**

People joining ODL with non-teaching experience have reported less system orientation, low acknowledgement from superiors and interpersonal conflicts as main challenges. During job tenure they faced lack of promotional opportunities which hampered the career growth. Another de-motivating factor for ODL faculty is the lack of research oriented activities and limited access to educational resources (Journals and libraries). Faculty is involved in monotonous activities; no encouragement is received from senior management for bringing innovation and creativity in routine matters. As per university's policy teachers' promotion is based on experience and qualification, but routine matters of faculty do not allow them to spare time for education up gradation. Specifically, for female teachers work life balance is identified as a major challenge.

### **No experience → ODL:**

The fresh graduates joining ODL faced different challenges as compared to people with non-teaching experience. According to respondents, at the time of joining ODL, they perceived their jobs similar to traditional teaching but they face notable difference in ODL. ODL lacks the direct student-teacher interaction which is a basic aspect of traditional teaching. Due to difference in teaching mechanism it becomes difficult for a teacher to shift from ODL to traditional. Moreover, job timings in ODL mode are lengthy for teachers, causing dissatisfaction especially among female teachers. Some respondents also complaint for student behavior that needs moral guidance.

### **Traditional → ODL**

More job hours, less promotional opportunities and difficulty to manage work life balance (female faculty) are the main issues reported by the people joining ODL with traditional teaching experience. Moreover, they also found ODL job hectic in terms of work load. The faculty with traditional experience was not technology proficient and faced difficulty with online system at time of joining. And it took time to make then system proficient.

**Limitations of the study:**

Findings of the study cannot be generalized due to small sample size selected non-randomly. Therefore, the identified issues cannot be attached to the whole faculty of ODL in Pakistan.

**Conclusion:**

ODL has a diverse group of people resulting into compatibility challenges for faculty members. To cope with these challenges it is important to understand the entry level issues of ODL faculty. The findings identified salary as a main attraction to join ODL while lack of internal promotional & growth opportunities is major reason of turnover. Workloads, strict deadlines, monotony, limited student-teacher interaction, lack of formal orientation, less research opportunities, restricted access to educational resources and hurdles in degree up-gradation are the main issues reported by faculty of ODL. Among these issues job promotion and student-teacher interactions are identified as prominent challenges faced by ODL faculty regardless of previous experience. Authorities should consider these issues in order to retain the experienced faculty; a valuable human resource.

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# **Explaining the work of the ODL faculty through a job characteristic model (JCM)**

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## **Abstract:**

People's tendency to perform a particular job is highly influenced by its nature. Job performance ultimately enhances with the performer's personal inclination. This inclination is mostly measured through a Job Characteristic Model (JCM) which explains a job in terms of; skill variety, task identity, task significance, autonomy and feedback. Skill variety depicts different types of skills required to perform a certain task, task identity assists in identifying its performer, significance shows the importance of a particular task in an organizational setting, autonomy shows the authority rests with the performer to perform a certain task and feedback is a response regarding performance of a task. These factors do not represent the technical aspects of a job; rather indicate the interest-factor of the job. The degree to which these job factors are fulfilled drives the behaviors of the individuals performing the particular job. Analysis of a job through JCM highlights the aspects of a job which are satisfied and overlooked. This study elaborates the job of faculty of Open & Distance Learning (ODL) through questionnaire to identify the areas of JCM which need attention. As parts of JCM indicate the motivational level of the incumbent, this study also directs the attention towards motivating the ODL faculty to perform even better. This study was conducted within Pakistan and the faculty of the ODL at different job positions involved in teaching was interrogated for the jobs they are performing in terms of JCM. Outcomes of the study contribute towards the staff development.

## **Keywords:**

*Open and Distance Learning (ODL), Job Characteristic Model (JCM), skill variety*

## **Introduction**

In order to enhance and maintain the performance levels it is required to keep employees motivated. Employers adopt multiple financial and non-financial means for employee motivation (Champoux, 1980). Job itself serves as a great source of employee motivation if it allows autonomy, challenge, sense of accomplishment etc (Fried & Ferris, 1987). Therefore, a job characteristic is of significance which describes the motivation of its performers. A model named "Job Characteristic Model"-JCM describes the job in terms of five different dimensions which influences the motivational



level of its performers. These dimensions are skill variety, task identity, task significance, autonomy and feedback (Hackman & Oldham, 1976). Jobs rating high on these dimensions resulted into improved employee motivation, satisfaction and performance while reducing absenteeism and turnover rates. This importance of JCM stimulates this study to analyze the jobs performed by the ODL teachers to evaluate the nature of their jobs. ODL varies from traditional learning mode therefore; nature of job for ODL should be studied independently and should not be characterized through JCM studies of traditional mode. This study only focuses the jobs performed in ODL mode operating in Pakistan. The job positions related with student teaching in ODL are tutors/instructors, lecturers and assistant professors. Therefore, these job positions have been studied in this study to analyze jobs through JCM. The findings of study identify the job dimensions which are rated high and low in ODL system. These dimensions strongly influence the students as they are at the receiving end of job activities performed. Such analysis assists in improving the teaching styles and enhances the effectiveness of ODL. The findings can guide the related authorities to modify the ODL staff jobs in order to enhance skill variety, identity, significance and autonomy which lead to better motivation and satisfaction.

## **Literature Review**

Researchers argue that in order to perform any job, an employee must have ability as well as certain level of willingness to do so (Kumar, Abbas, Ghumro, & Zeeshan, 1970). There are certain job characteristics that enable a person to perform willingly to his/her maximum ability (Guise, 1988). Those characteristics are related to psychological states of employees and their personal and work outcomes (Champoux, 1980). To create willingness to perform any job, it is essential to design jobs in such a way that motivate and satisfy employees from the work they are indulged in. Realizing this need of designing job that can create work-related psychological wellbeing, Hackman & Oldham presented a Job Characteristic Model in 1975 and tested job characteristic theory in 1976 (Hackman & Oldham, 1976). The job characteristic model belongs to behavioral sciences approach of management, however it integrates the strengths of other theories of management such as, classical organizational theory, human relations theory and systems approach to work design (Guise, 1988). According to Oldham and Hackman (1980)“the person job relationship is key in understanding both organizational productivity and the quality of employees’ work experiences” (p. 19). Hackman and Oldham (1975) model diagnoses and designs jobs to fit the employees as person-job (P-J) fit is the primary focus of organizational psychology Ehrhart (2006) hence, this model is generally related to psychological well-being of employees (Jonge et al., 2001). The job characteristics theory admits that individual employees may respond differently to the same job based on possessing different skills sets, motivation level and satisfaction parameters (Guise, 1988).

The job characteristics model (JCM) is comprised of five core job characteristics that create impact on three critical psychological states of an employee that ultimately affect persons’ emotional (satisfaction and motivation) and behavioral (e.g. absenteeism and turnover) responses (Kumar et al., 1970). Zare, Jajarmizadeh, and Abbasi (2010) also studied that JCM is related to psychological and behavioral outcomes such as, intrinsic motivation, quality work, satisfaction and low absenteeism and turnover. According

to Oldham and Hackman (1980) the absence or presence of these core job characteristics determines whether or not job motivates workers to perform at their best and experience certain level of satisfaction. The five core characteristics defined by Hackman and Oldham (1975) are; skill variety, task identity, task significance, autonomy and feedback. *Skill variety* refers to the degree to which a job requires variety of activities with variety of different skills, abilities and talents of employee to carry out the work. *Task identity* refers to degree to which job requires identifiable piece of work perform by an individual till its completion with a fruitful outcome. *Task significance* refers to degree to which completed task has significant impact on lives or work of other people whether inside or outside the organization. *Autonomy* refers to the degree to which job provides significant freedom to employees and employees are independent and self-sufficient to take any decision and determine the process and procedures to be used in carrying out certain task. *Feedback* refers to degree to which job tasks obtain clear information about the effectiveness of being performed. (Figure 1 shows JCM adopted from (Hackman & Oldham, 1975))

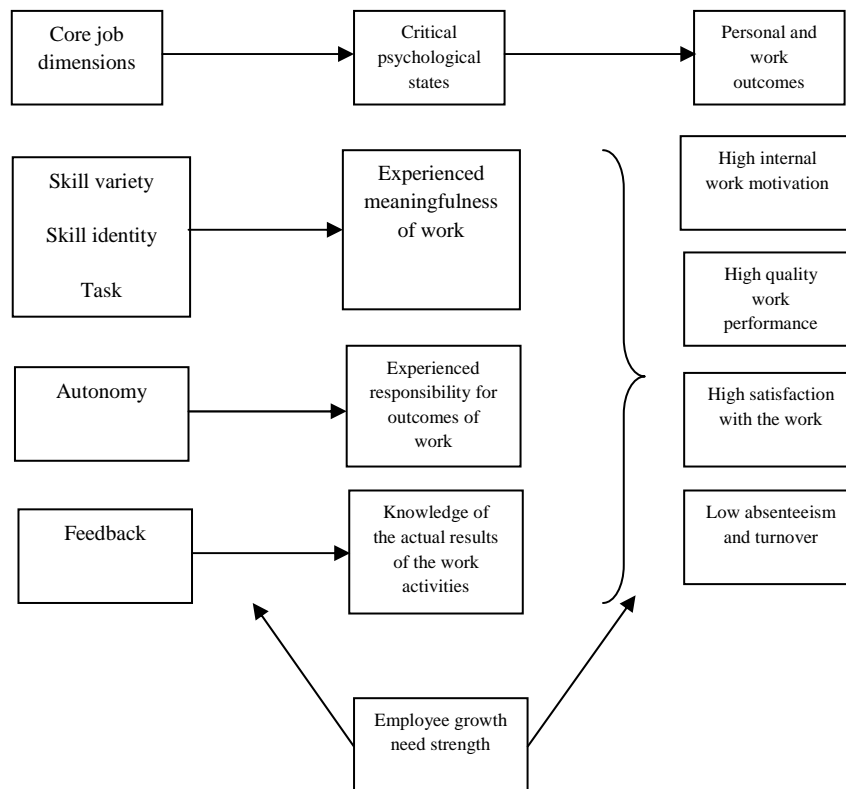


Figure 1: JCM model (Hackman & Oldham, 1975)

Researchers studied the implication of JCM worldwide in different organizations with different nature of job and found it significantly related with work outcomes and psychological well-being of employees (Fried & Ferris, 1987). Researchers studied the model in organizations such as health care centers Jonge and Schaufeli (1998) agricultural organizations Zare et al. (2010) and academic institutes including; school setting Lawrence (2001) and university setting (Guise, 1988).

The establishment of Open University in Britain in 1969 changed the teaching and learning mode for the following years (Bates, 2006). Today, Enormous technological changes, globalization and cultural shifts have dissolved the frontiers education institutes face with respect to availability of services on two different places at same time and flexible learning (Harry, 2003). Calvert 1986 explained in his research that distance education helps to widen the trend of education to that clientele who have not been served previously. Large number of Open Distance Learning institutes emerged mainly in post 1980s and today these open distance learning organizations are playing important role for the development of country by providing flexible and higher education and more learner centered approaches (Aderinoye & Ojokheta, 2004). Open distance learning institutes changed the learner's approach of learning as well as instructor's approach of teaching. Open distance learning (ODL) is different from the campus-based learning and hence the nature of job of instructors is different from that of conventional learning (Bates, 2006). Most of the studies of JCM among faculty belong to conventional mode of education institutes but increasing amount of open and distance learning organizations have put researchers' interest to study the impact of JCM in open and distance learning institutes. Hence, this study aims to explain the job of ODL faculty with respect to JCM.

## **Research Methodology**

This study describes the jobs of ODL faculty in terms of Job Characteristic Model (JCM). In education sector job positions involved in teaching are mostly assistant professors, lecturers and tutors. Therefore, population of this study is based on ODL faculty working at these job positions. The most widely tool used to measure job design i.e. Job Diagnostic Survey developed by Hackman and Oldham (1975) has been used to measure the job design of ODL faculty. Applying the similar instrument, questionnaire with close ended statements were emailed to gather the primary data from ODL staff. Items of questionnaire targeted each dimension of JCM on five point likert scale, so that data related to each dimension can be collected. The sample was collected through convenience sampling as availability of teacher was major concern but it was ensured to target the every faculty position in ODL of Pakistan. 70 questionnaires were sent to respondents; out of which 60 responses had been received and were filled properly, therefore sample size is defined as 60 in this study.

## **Findings of Study**

In order to analyze the data descriptive statistics have been performed through SPSS. Mean is calculated for each dimension of JCM to identify dominant dimension of JCM among ODL faculty. This analysis also assists in identifying the lacking factor of JCM which may be causing motivation, satisfaction and performance issues. According to Table 1, all the dimensions of JCM, except skill variety, are above average (<3.0= below average, 3.0=Average, >3.0 = above average). Skill identity is found prominent in JCM with the mean value 3.76 (SD = 0.57) among ODL faculty. However, with mean value of 2.79 (SD = 0.50), skill variety is the most lacking factor among faculty jobs of ODL.

Table 1: Descriptive Statistics

	N	Mean	Std. Deviation
Skill variety	60	2.7933	.50753
Task Identity	60	3.7600	.57022
Task significance	60	3.3167	.42264
Autonomy	60	3.3600	.63117
Feedback	60	3.1722	.70039
N	60		

Table 2: Descriptive Statistics for each Job Title

Job title		Skill variety	Task identity	Task significance	Autonomy	Feedback
Instructor	Mean	2.6276	3.6000	3.2299	3.3172	2.9310
	Std. Deviation	.49778	.63019	.33751	.67298	.62602
lecturer	Mean	2.9154	3.8923	3.4615	3.3231	3.4167
	Std. Deviation	.50966	.46037	.48375	.62245	.74722
Assistant	Mean	3.1200	4.0000	3.0667	3.8000	3.3000
Professor	Std. Deviation	.10954	.56569	.32489	.14142	.41500

N=60

Table 2 indicates the mean values of JCM segregated on three faculty positions (Instructor, Lecturer & Assistant Professor) of ODL. Skill variety is found below average for instructors and lecturers while for assistant professors it is at average. This indicates that assistant professors are involved in activities which require various types of skills. Whereas, instructors and lecturers are performing similar type of tasks requiring limited variety of skills. Therefore, attention is required at instructor and lecturer level, specifically at instructor level (mean=2.627) to modify the job structure by involving utilization of more skills. In ODL task identity exists in every faculty job (instructor, lecturer & assistant professor). In this domain assistant professors are again rated high. Task significance is identified above average for all the three faculty positions. However, it is high at lecturer level and low for assistant professors. The reason can be the direct influence of tasks on students at instructor and lecturer level indicating their effect on people inside or outside the organization.

Autonomy is also above average for all the three faculty positions with highest mean value (3.8) for assistant professors. This shows that assistant professors are more empowered in their jobs as compare to other two. Feedback on tasks is above average for lecturers and assistant professors while instructors are not provided with adequate feedback. Employee motivation is significantly affected by the feedback on performance, it creates sense of achievement and satisfaction among the employees and they are motivated to perform better. Low feedback at instructor level can create absenteeism and increased turnover.

### **Conclusion:**

Although the results of most of the dimension are above average but, still job designs of ODL faculty needs attention. Job lacks skill variety which means faculty are doing routine job with restricted creativity that can be alarming for ODL organizations specifically at instructor level. This factor may lead faculty towards de-motivation for doing same tasks for prolonged time period. As per figure 1 skill variety enables person to achieve meaning in work they perform and lack of meaningfulness can have adverse outcomes of low satisfaction, poor performance and ultimately behavioral outcomes such as absenteeism and turnover.

Education sector highly depends on creativity and continuous learning which requires variety of skills in its human resource. If faculty jobs do not allow skill variety, then it may also restrict personal and organizational growth and development. The issues in job structure at instructor level are high as compare to other two job levels. especially in terms of feedback and skill variety. As instructors are directly involved with students, hence issues related to job structure also impact the students' performance. Student services can be enhanced if faculty is highly motivated and satisfied and such analysis assist ODL in attracting a valuable human resource that improves the quality of education in ODL.

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# **An explicit overview on the professional development approach in Nepal's ODL policy**

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## *Abstract*

*Open and Distance Learning (ODL) has now become an important tool for human resource development for developed countries and equally for developing countries as well. Not only for the fresh learners but professionals from different fields are also benefited from the ODL methods of learning. Especially in developing countries, where access to education is limited due to various reasons, such methods have been proved effective. Professionals ranging from teachers involved in teaching and learning to other professionals scattered in different fields like banks, hospitals, government services, etc. can equally be benefitted with the ODL mode of education.*

*With the change of complex nature of the teaching and learning environments it expects for radical and relevant for enhancing knowledge, skills, attitudes, abilities and empowerment for the teachers. So as bankers are also facing rapid changes in terms technology as well as the services they have to offer due to the fast changing customer demand and international trend in banking. No need to mention, modern medical professionals are also in need of up-to date knowledge for their professional development. So are the cases for engineers, lawyers, accountants etc. To state in brief, no matter the fields of professions they are engaged in, every professionals are required to be up-to-date in their respective fields and they should be made themselves up-to date at any point of time. ODL, obviously, will be the prime tool to support their need of this kind. ODL is flexible by its nature and because of its flexibility; it offers opportunities to different people with special needs including the people with disabilities and pave them roads also for accessing the higher education contributing directly for equality in education and alleviating poverty in developing country like Nepal.*

*Nepal has not yet adopted any mode of ODL till date. It has 9 universities currently but none of them offer education in distance mode. Government is gradually trying to introduce ODL in the country and also have formulated a policy in government level. This paper tries to explore the importance laid down by Nepalese Government in relation to ODL through her policy on ODL. Further, this paper has critically examined the policy of Nepalese Govt. in relation to Professional Development approach laid down there.*

*Key words: Open and Distance Learning, Professional Development, Poverty Alleviation, Equality in Education, ODL Policy*

## **Introduction**

Open and distance learning (ODL) is very useful in many ways for not only core students but also to the professionals to develop their academic qualification directly having positive impact on their professional career. In developing countries like Nepal ODL is vital as a means toward professional development. With the globalization, which has resulted into change in technology and use of knowledge as personal and job markets, the highly qualified personnel cannot fit in the changing and thus it is highly imperative for updating their knowledge and skills all the time. Thus the flexibility of ODL is highly values as provides opportunities to all people to access knowledge. In this paper, we have tried to show the professional development approach enshrined in Nepalese policy on Open and Distance Learning.

## **Distance education and professional development**

As briefly stated in the introduction chapter, the flexibility of ODL allows most people to update their knowledge without making any adverse effect in their profession or service. This is even more important while we talk about developing countries where the human resource is scarce even if they are available; they are not beyond the questionable quality.

The contribution of ODL in developing countries is even higher. With ODL many people who have ICT knowledge and skills can access knowledge and become competent.

As the word itself explains, distance education is seen as the strategy in which people can manage their learning within their working and social environment thus by luring large number of people to join in ODL for their professional development.

In many developing countries, there are plenty of institutions which provide fulltime or on-the-job training for their staff in Open and Distance mode. Interestingly, however, there don't seem to be many prominent examples of institutions which use ODL for



staff training and development. One of the commendable practices is being carried out by The Indira Gandhi National Open University in India. So is Community Development Employment Project -CDEP (Southern Africa), which is a program for staff of institutions in more than one country. As a regional course, CDEP has succeeded in modeling good ODL practice and promoting a learner centered approach.

## **Background**

The beginning of ODL dates back to 18<sup>th</sup> century due to the phenomenal advancement and innovation in transportation and communication heralded by industrial revolution. ODL as alternative mode of education started when technology made it feasible to separate teacher and learner from a fixed place at a fixed time, to meet a fixed person, in order to be trained.

Among South Asian countries, for the first time it was started by Allama Iqbal Open University in 1974.

## **Nepal and ODL**

While talking about the Nepalese context on Open and Distance Learning, we are far away from the basics of ODL. Nepal does not have any history of ODL offered by the state establishment. However, it has plans to establish Open University but not yet any development has been materialized in this regard so far. Nepal's initial endeavor can be located in the very year when the government became one of the signatory of SAARC Consortium to ODL in 1990. Thus, in this sense, only from 1990 Nepal's initiative can be visualized in relation to Open and Distance Education.

As an effort in developing the highway for open and distance learning spectra in the country, in 1999, Ministry of Education of Nepal constituted an Open Learning and Distance Education (OLDE) Committee under the chairmanship of then Secretary of Education. The objective of this committee was to suggest the government with modalities of OLDE in Nepal. The Committee comprising OLDE experts suggested the government with alternatives of programs and resources.

But ironically report submitted by the committee is only gathering dust in some cabinet of the ministry even today. Since 1999 the agenda does not seem to have occupied any importance for around a decade. No implementation has been carried out what have been dreamt in the policy.

Exactly after eleven years, i.e., in October 2010, another notable and optimistic effort from the government can be seen due to collaborative nature of the venture. Ministry of Education (MoE) and Non-Resident Nepali Association (NRNA) signed in an agreement to start Open University Nepal (OUN)] move appears visible. The proposed OUN has included the following major objectives:

- Close the gap in higher education demand, currently unmet by the combined capacity of all the institutions, through open and distance mechanisms.
- Take tertiary education to the rural, remote, and marginalized people of Nepal, especially women and Dalits, who are practically confined to the villages due to family obligations, social challenges, and financial constraints.
- Provide opportunities for teachers and government employees who are unable to advance their education, skills and careers while living in rural and remote places, or to those who are unemployed.
- Provide a mechanism to continue education for the youth who take temporary or permanent employment in foreign countries.
- Advance a computer-based education to rural Nepal that relates to health, social-systems, productivity, economic improvement, and sustainability disciplines.

(Source: Rasali, Adhikari and Dhakal)

## Review of Literature

There are not literatures in large on Professional development in ODL. Reviewing it raises the question whether ODL is an underused approach to training. Lentell's regular staff development column in *Open praxis* for 10 years from 1993 never examined it, though she took some swipes at the cookbook approach to training manuals. Rather few of the contributors to Latchem & Lockwood (1998) deal with ODL as a tool for staff development. An exception is Gunn & Panko, who describe a staff development course using self-study.

What Randell & Bitzer (1998: 139) say about South Africa is true more widely: 'Overcoming years of reinforcement of a teacher-focused model of teaching and learning and changing underlying conceptions of learning and teaching will be a lengthy process requiring a great deal of skillful professional development.' The needs in many other developing countries are the same: 'Course and materials developers need to be enabled to develop programs which encourage deep and autonomic learning and which are culturally and linguistically appropriate. Tutors and counselors need to acquire new Student-centered approaches to teaching and learning and develop their diagnostic, problem-solving and inter-personal skills in assisting culturally diverse students.

Managers and administrators need to be given the knowledge and ability to provide and evaluate relevant support systems for staff' (Randell & Bitzer, 1998: 141). Lentell (1994) identifies an important tension between what tutors and managers look for in staff development. On the one hand, practitioners demand the development of a professional learning community, i.e. a learning organization. On the other, distance education managers have seen their major task as 'to brief and train tutors in a new mode of delivery and not to encourage ongoing learning'. 'Failure to address this contradiction will lead to a cynicism among staff and a sense that the language of staff Development is merely empty rhetoric' (30).

Dillon and Walsh, in a review of the distance education journal literature, concluded that 'faculty or teaching staff development programs designed to promote distance

teaching are concerned primarily with training and do little to encourage or support a dramatic restructuring of faculty roles' (16-17).

They identified the issue of learner ownership, for which such change in academic culture is necessary, as central to the development and successful diffusion of distance education (17).

### **Research Methodology**

Since this paper is solely focused on the professional development approach enshrined in Open and distance Learning Policy of Nepal, no data has been collected externally. What we have done is the extensive study of the existing policy and its adequacy on the ground of professional development. So the analysis is based on the policy document backed up with the theoretical concept of professional development through ODL. That is another reason; we have not taken any secondary data while preparing this paper.

So study is solely based on the explicit study of existing Open and Distance Learning policy of Nepal and the approach of professional development incorporated in the policy has been tried to explore out with the aid of beauty of professional development tools that is inbuilt in ODL.

### **ODL Policy of Nepal: Background**

Though the Nepal Govt. has adopted the policy long back on ODL, the outcome of the effort, however, has been only a ray of hope for the advocates of ODL. In a context when the plan is in incubation period, writing on the professional development approach on existing policy of Nepal might sound highly phantasmagoric. However, we should not forget that-

First, the government of Nepal along with a promising partner has declared an Open University as a viable and appropriate means to provide mass access to tertiary education and-

Second, ODL has already been in operation since the turn of century in Nepal through accredited universities such as Indira Gandhi National Open University (IGNOU).

Further, Faculty of Education (FoE) of Tribhuvan University (TU), the largest and pioneer university of the country, also plans, develops and implements new courses and new programs by mobilizing its own resources as well as with the help of national and international collaborations. Its M.Ed. program, through ODL mode is being supported by the National Centre for Educational Development (NCED), and JMAK University of Applied Science and HMAK University of Applied Science, Finland. For the effective implementation of the M.Ed. program through ODL, Trainings of Trainers (TOT) have been conducted and the program has been started in 6 campuses from the five developmental regions. Some new courses, which have been introduced recently in M.Ed., are Biology Education in Sanothimi and Gorakha Campuses, ICTE in Sanothimi Campus, and Physics Education in Mahendra Ratna Campus with the financial support from the Second Higher Education Project.

So in this light, Nepal has also started the courses in Open and Distance Learning mode and definitely this has expanded the rays of hope.

### **Professional Development Approach in Nepalese ODL Policy**

Before we go on explicit study on professional Development approaches enshrined in ODL Policy of Nepal, we just simply present first the provision of professional development context as mentioned the existing Policy of Nepal.

Nepal Government adopted her Open and Distance Learning Policy on 2063.09.20 B.S, (4 Jan 2007 A.D). This policy clearly mentioned its vision as ‘Creating supplementary/alternative ODL System to benefit with all the possible opportunities for the citizens belonging to diverse need contexts to give access to education and opportunities to acquire formal education and overall personality development especially to the deprived community, women and working people through distance mode’.

With this clear vision, Nepalese ODL policy has given high importance in professional development mentioning the development of ODL for the benefit of working people among others.

This policy is mainly focused on following four areas:

**Policy 1: Expanding access to education to learners of diverse needs.**

To achieve the goal of this policy, the policy document has set the strategies to institutionalization of ODL system by creation of Semi-Autonomous High level Council among others.

**Policy 2: Improving quality of conventional education.**

And to achieve the goal of this policy, the policy document has set the strategies as follows:

- A special arrangement will be made to integrate the learning facilities under the ODL system into the conventional system of education in order to create varieties of opportunities for quality education.
- Various programmatic schemes such as application of appropriate media and learner support materials to benefit students of the conventional system; credit transfer system between open and conventional schooling, teacher development programs will be developed and implemented through the distance mode.
- The council will initiate and develop the programs and establish official collaboration with relevant agencies in the public and private sector for implementation and monitoring.
- Initial investment for such supplementary programs will be borne by the government. At the same time private sector will be encouraged for large-scale implementation. Possibilities of public private collaboration will be explored and implemented in the execution of the programs.

**Policy 3: Promoting continuing education and professional development.**

And to achieve the goal of this policy, the policy document has set the strategies as follows:

- Under the ODL system, a separate mechanism will be established to create various provisions for life long/continuing education and occupational skill upgrading by targeting to different actors working in various sectors and the community members.
- Different programs in areas like teacher development, social awareness, civic education, health education, human rights education, child rights education, environment education will be developed and implemented through distance mode.
- The DEOL Council will coordinate the efforts of various agencies involved in the implementation of programs through distance mode for designing and planning of activities. At the sub-national level all relevant agencies and networks including the Community Learning Centers (CLCs) and the Tele-Centers will be utilized for the purpose of implementing such programs.
- In addition to the government investments in the targeted areas sponsors will be attracted to fund the programs. Further, fees will fund part of the costs in case of the registration based courses. The Council will mobilize all other possible sources of generating resources including the involvement of private sector.’

**Policy 4: Establishing a system of knowledge and skill certification.**

And to achieve the goal of this policy, the policy document has set the strategies to establish an Special mechanism under the ODL system for accreditation and certification of the skills in the vocational field and customary learning/knowledge in the general field of education acquired by citizens of diverse communities such as tribal and indigenous communities. Likewise, policy mentions- ‘appropriate testing, customized remedial/bridging courses and counseling programs will be developed and organized to certify the skills and knowledge at the primary and secondary levels of education. A separate board will be created at the national level under the ODL system and the board will be made responsible for developing and organizing the testing, remedial and counseling programs in close coordination with relevant agencies like CTEVT and so on.’

## **Analysis of the Policy and Conclusion**

Nepal is a developing country where the competency of professionals of different sectors plays a vital role in the sustainable development of the country. Different problems have to be faced in this sector due to incompetent manpower, negligence of the government related authority holder and so many other reasons.

Though Nepal has adopted ODL policy, no proper steps have been taken place to materialize the concept and country is still is outside the educational world of Open and distance Learning. Only preliminary stages are in existence where one or two institutions have started ODL mode of imparting education.

In such a context, government level policy is expected to be more profound and eminent to improve the situation and go ahead pace by pace with rest of the world. But, it is seen from the policy document that the Government is not serious enough regarding the Open and distance education and it has developed the policy just to add the one more policy that need not to be implemented amongst many of such lists. It has merely developed a brief policy in one hand and in another hand, whatever the issues are raised in the policy, they are also waiting for implementations showing clear apathy of the government in developing Open and Distance Learning module in the country.

Though the policy itself is not sufficient and has not addressed many importance issues, it has accepted the norms of professional development through Open and Distance Learning. Among 4 major areas of focus of the policy, Professional Development has got an important enlisting. Imagination of a separate mechanism to smooth life-long learning environment is commendable adaptation of the policy.,

Likewise, the policy also has accepted the need of programs for different professionals like teachers, social workers, entrepreneurs, health practitioners; child right/human rights activists etc.



With this, the importance laid down in the policy in relation to Professional Development is commendable, though it require massive implementation to get materialized the concept of what have been perceived. To sum up Nepal has not yet set out for a long journey of far destiny of Open and Distance Learning. Without starting a journey, reaching destiny is impossible. So Nepal needs to stand up and start walking to reach the way that has been perceived by policy.

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# MOOCsification: Motivations and deterrents

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**Abstract.** This paper presents a study of the considerations of institutions in offering MOOCs in terms of their motivations and deterrents. It surveys the official publications and webpages of the institutions to examine their justifications of offering MOOCs or not, as well as relevant literature for other advantages and deterrents.

The findings show the motivations which revolve around four major aspects: self-marketing, financial, educational and research, and the advantages of strengthening relationships with potential partners and stakeholders. For the deterrents, uncertainty of learning effectiveness is the major one stated by the institutions, together with the concerns raised in the literature, i.e., technological requirement, financial cost, time and resources, completion rate and plagiarism.

The motivations echo to a large extent the findings of other similar surveys. In particular, self-marketing is the main driving force to offer MOOCs. Given only a few years of MOOC development, there remain very limited empirical data revealing the extent of which the goals behind the motivations have been achieved. The findings of this study suggest further investigation whether provision of MOOCs has led to the desired outcomes of the institutions.

**Keywords:** massive open online courses, MOOCs, motivation, deterrent

## 1 Introduction

The rise of massive open online courses (MOOCs), in a few years of time, has caught snowballing attention and a rapidly increasing number of institutions have been taking part in offering courses. For example, the number of MOOC-offering institutions in the United States has nearly doubled at the end of 2013 compared with that of 2012 (i.e., from 2.6 to 5 percent) (Allen & Seaman, 2014). Their courses are offered on different kinds of MOOC platforms, covering both for-profit and non-profit ones (e.g. Coursera and edX, respectively). Yet, there are also many institutions which decide not to offer MOOCs. The different institutions' decisions of MOOC provision reveal their diverse motivations and deterrents in this aspect.

As MOOC is a relatively new mode of course delivery, there remain a lot of uncertainties to institutions about involving in it. To determine whether to be involved and how to take part in providing courses, it is important for institutions to consider, for example, how provision of MOOCs might help them pursue their target market, serve their students better, leverage their advantages, and strengthen their relationships with potential students and other stakeholders. The motivations and deterrents of institutions' decisions to, or not to, offer MOOCs reflect the potential rationales behind the decisions.

This paper reviews the motivations and deterrents of MOOC provision. It surveys the institutions' justifications of offering and not offering MOOCs from their official publications and webpages, and other advantages and deterrents from relevant

literature. The findings will serve as a basis to examine the factors involved in making institutions' decisions regarding MOOC provision.

## **2 Methodology**

This study surveys institutions' motivations and deterrents of MOOC provision. The data sources cover the official publications (press releases, bulletins, etc) and webpages of institutions which offer and do not offer MOOCs, and other relevant literature (research articles, reports, case studies, etc.). This study excludes informal sources of data such as personal blogs and online forums, and materials published later than 30 June 2014.

Information of MOOC-offering institutions is gathered from two major MOOC platforms (Coursera and edX) from their lists of partnering institutions, together with other literature especially case studies. Both kinds of institutions which only offer courses on available platforms and/or also involve in developing platforms are included.

The gathered information is categorized into groups of those with empirical supports (case study or official announcements) and those which do not (personal opinions). This distinguishes between institutions' justifications which support their course provision and other comments which are conceived to be advantages or deterrents of providing courses.

## **3 Motivations of offering MOOCs**

The motivations of MOOC provision cover three aspects, including justifications from participating institutions, other advantages and threats as mentioned in literature.

### **3.1 Institutional justifications**

Table 1 summarizes the institutional justifications of offering MOOCs with examples provided. The justifications are categorized into areas of self-marketing, financial, educational and research.

#### Self-marketing

Providing MOOCs can be viewed as a self-marketing strategy for an institution to enhance its brand image. By labeling itself a contributor or pioneer in the global development of online learning, the institution can market itself as an international one with great foresight. MOOC-offering institutions usually express, through their press releases, their intention to keep staying at the forefront in the global development of online education. For instance, Duke University claims that it aims to maintain its position as a leader in the exploration of online education (Duke Online Education Initiative, n.d.). Peking University also presents its goal to "leading the way in the new frontier of free online education" (Zhai, 2013). The Hong Kong University of Science and Technology provides courses on edX as a demonstration of the institution's "commitment to contributing to the global development of online learning as an international research university" (HKUST, 2013).

Table 1. Institutional justifications of offering MOOCs

Justifications	Examples
<u>Self-marketing</u>	
To impel the development of online learning on a global scale and be a pioneer in the field	<ul style="list-style-type: none"> <li>• Duke University (Duke Online Education Initiatives, n.d.)</li> <li>• Peking University (Zhai, 2013)</li> <li>• Hong Kong University of Science and Technology (HKUST, 2013)</li> </ul>
To demonstrate the strengths of the institution	<ul style="list-style-type: none"> <li>• University of New South Wales (UNSW, 2013)</li> <li>• University of Hong Kong (HKU, 2013)</li> <li>• International Telematic University (UNINETTUNO, n.d.)</li> </ul>
To establish the charitable status of the institution	<ul style="list-style-type: none"> <li>• Chinese University of Hong Kong (CUHK, 2013)</li> <li>• University of Exeter (University of Exeter, n.d.)</li> </ul>
To reach the desirable market <ul style="list-style-type: none"> <li>- Recruit potential students</li> <li>- Outreach to new students and continuous engagement with alumni</li> <li>- Draw public attention</li> </ul>	<ul style="list-style-type: none"> <li>• University of Colorado Boulder (Hollands &amp; Tirthali, 2014)</li> <li>• Duke University (Duke Online Education Initiatives, n.d.)</li> <li>• American Museum of Natural History (Hollands &amp; Tirthali, 2014)</li> </ul>
<u>Financial</u>	
To explore potential streams of revenue	<ul style="list-style-type: none"> <li>• Georgia Institute of Technology (“Amendment to”, 2013)</li> </ul>
<u>Educational</u>	
To provide better learning experience to their students	<ul style="list-style-type: none"> <li>• San Jose State University (Oremus, 2013)</li> </ul>
To close the gap between pre-university and university education	<ul style="list-style-type: none"> <li>• Universitat Pompeu Fabra (Daza, Makriyannis &amp; Riera, 2013)</li> </ul>
<u>Research</u>	
To explore new pedagogical models and improve on-campus education	<ul style="list-style-type: none"> <li>• University of Exeter (University of Exeter, n.d.)</li> <li>• University of New South Wales (UNSW, 2013)</li> </ul>
To apply learning analytics	<ul style="list-style-type: none"> <li>• Harvard University and Massachusetts Institute of Technology (Li &amp; Powell, 2013)</li> </ul>

An institution can utilize MOOCs as a means to showcase its academic excellence, by having renowned scholars to teach the courses. For example, the University of Hong Kong states that “[it] will call on professors with a track record of excellence in teaching to offer HKUx courses” (HKU, 2013). International Telematic University (UNINETTUNO) also expresses that learners can have access to “the best Italian and international lecturers drawn from a selection of the best courses of UNINETTUNO” (UNINETTUNO, n.d.).

Some institutions, through providing MOOCs, express their eagerness to educate anyone reachable in a broader society. This may in return build up the brand of the institutions (Bell, 2013). For example, the Chinese University of Hong Kong indicates

its will to bring their courses worldwide and available to anyone for free (CUHK, 2013). University of Exeter makes a more explicit claim that its provision of MOOCs “may enhance the reputation of the institution and provide a public service aligned with [Higher Education]’s non-profit charitable status” (University of Exeter, n.d.).

MOOC-offering institutions can also reach their target markets in different parts of the world, by relaxing the constraints of time and location to take the courses (Newsman & Oh, 2014). First, institutions can identify and recruit potential candidates for their programmes. For instance, the University of Colorado Boulder offered MOOCs in engineering with a plan to recruit students for its programme by sending top performers information about the programme (Hollands & Tirthali, 2014). Second, MOOCs enable institutions to connect with prospective students and audiences they would like to continuously engage with (e.g. alumni) (King & Nanfito, 2012). Duke University claims that it would like to “use online education to reach graduate, professional and alumni audience” (Duke Online Education Initiatives, n.d.). Third, provision of MOOCs also helps institutions to draw public attention. American Museum of Natural History in New York, through offering three courses in science, has the goals to reach a wider population and raise its international visibility (Hollands & Tirthali, 2014).

### Financial

MOOC provision may open up new revenue streams for institutions and hence is regarded as a strategic investment (Li & Powell, 2013). Institutions may generate revenues by issuing certificates, providing college credits, charging for tuition fees, drawing MOOC participants to fee-based courses and degree programmes, licensing MOOC materials and providing premium online services (Hollands & Tirthali, 2014). For example, Georgia Institute of Technology has collaborated with Udacity to offer an online master degree programme in computer science (Hollands & Tirthali, 2014). Despite the reduced tuition fee for students to study the programme, the financial plan of Georgia Tech indicates that its revenues will be able to cover the cost by Year 3 (“Amendment to”, 2013).

### Educational

MOOCs may facilitate on-campus education by offering educators and students a new teaching and learning model. There are successful examples showing how the implementation of MOOCs in traditional education improves students’ learning performance. San Jose State University experimented with a flipped-classroom model in an engineering course. Students were first assigned to watch a MOOC video lecture, and filled in a questionnaire to test their understanding and review the parts they were least able to master, then formed groups to solve the problems. At the end, 91% of the students passed the course, a substantial improvement comparing with the average passing rate of 65% over the past seven years (Oremus, 2013).

MOOCs can also be used as preparatory courses to overcome the gap between pre-university and university education. Universitat Pompeu Fabra (UPF) launched the MOOC *Descodificando Algebra* (Decoding Algebra) in March 2013, covering both the topics that are familiar to students with high school education and some difficult ones. Positive responses were received from incoming students of UPF who had taken the course voluntarily, in terms of usefulness in reviewing concepts or serving as supplementary materials (Daza, Makriyannis & Riera, 2013).

## Research

MOOCs serve as an opportunity for institutions to explore new pedagogical models and innovate on teaching and learning. The University of Exeter states that “the educational techniques and technologies used in MOOCs can also be applied to on-campus blended learning and distance-learning programmes, potentially improving [its] existing modules” (University of Exeter, n.d.). The University of New South Wales (UNSW) also claims that it can “incorporate some of the best online teaching practices and technological advancements into degree programs taught at UNSW, benefiting all [its] students and enriching their educational experience” (UNSW, 2013).

The large data sets generated by students’ activities in MOOCs can be useful information that provides insights into online pedagogical model (Li & Powell, 2013). They do not only reveal students’ usage of course materials, but also their interaction with instructors and other learners (Booker, 2013). Harvard University and Massachusetts Institute of Technology, through providing MOOCs, have taken the chance to understand how students learn and to improve on-campus education (Li & Powell, 2013).

### 3.2 Other advantages

Table 2 summarizes other advantages of offering MOOCs suggested in literature. They revolve around the strengthening of an institution’s relationships with potential partners and stakeholders.

Table 2. Other advantages of offering MOOCs

Advantages	Sources
To strengthen the institution’s relationships with potential partners and stakeholders	
- Partnerships with copyright holders	• Nanfito (2013)
- Partnerships with leading companies/organizations	• Heussner (2013)
- Inter-institutional collaboration	• Nanfito (2013)

By providing MOOCs, institutions have the opportunities to form partnerships with copyright holders. In the eyes of publishers, the large quantity of MOOC learners represents a potential market. Copyrighted materials recommended by course instructors may have their visibility raised, or even a boost in sales (Nanfito, 2013).

MOOC providers may also form alliances with well-known companies and organizations in order to stand out from the crowd (Heussner, 2013). Udacity and ALISON are some of the platforms that have collaborated with high-profile organizations to provide online courses (ALISON, 2014; Udacity, 2014).

Institutions may also ally with the others in providing MOOCs to enhance their competitiveness. For instance, OpenupEd, as a pan-European initiative jointly established by twelve higher education institutions, claims that by joining the partnership, institutions may enjoy extra visibility and have the opportunities to engage in collaborative research works and the option in using a partner’s platform (OpenupEd, n.d.).



### 3.3 Threats of not offering MOOCs

Institutions need to consider how provision of MOOCs elsewhere might weaken their strategic position. Table 3 summarizes the threats of not offering MOOCs. If institutions choose not to occupy a position in provision of MOOCs, they will find it hard to enter the market once the other institutions have negotiated their relationships and drawn up alliances in this new domain (Bell, 2013).

By providing MOOCs, the leading universities can further enhance their brand and gain favorable publicity (Kedem, Puchalla, Nelson, & Behr, 2012). These universities may be perceived as being generous and prestigious, which further widen the gap between them and the other institutions.

Table 3. Threats of not offering MOOCs

Threats	Sources
Being excluded from the market	• Bell (2013)
Widening the gap between leading universities and other institutions	• Kedem, Puchalla, Nelson and Behr (2012)

## 4 Determents

### 4.1 Institutional justification

For institutions which choose not to offer MOOCs, their justifications mainly focus on the uncertainty of learning effectiveness that students may gain (Table 4). For example, Oxford University presents that the MOOC phenomenon may be a “lemming-like rush”. While it has been providing students fantastic one-to-one or two-to-one learning experience through tutorials and colleges, the university does not see the needs of offering MOOCs in this point (BBC News, 2013). The Master of Trinity College Cambridge also mentions that seminars and tutorials cannot be replaced by MOOCs (Murphy, 2013).

Table 4. Determent of offering MOOCs

Determent	Examples
Uncertainty in enhancing learning effectiveness	• Oxford University (BBC News, 2013) • Trinity College Cambridge (Murphy, 2013)

In particular, the ways of teaching and learning of MOOCs present problems for instructors and students. The lack of instructor’s support has been an obstacle to effective learning of students in the MOOC environment (Hew & Cheung, 2014). Instructors may not be able to provide sufficient supports to their MOOC students. Given the huge discrepancy between the availability of instructors and the massive number of students, little individual attention can be devoted to each student. This may gradually affect the learning outcomes of students.

The feature of “massiveness” in MOOCs can be a drawback to efficient learning. The massive information available in discussion forums, rather than giving students more perspectives to knowledge, may disrupt them from organizing what they have learnt (Knox, 2014). For example, the course *E-learning and Digital Cultures*, which was offered in January 2013 on Coursera, had attracted 21,862 active participants. However, this massiveness resulted in too many discussions and interactions occurred

simultaneously, which paralyzed the participants to catch up with the key postings and follow the scheduling of the course (Knox, 2014).

The success of MOOCs depends largely on learners' motivation and discipline. As reported in Nanfito (2013), 88% of academic leaders believe that lack of self-discipline is a hindrance to students' effective learning in online courses. Fischer (2014) also observes that, despite providing students plenty of learning resources, the challenge is to give them a "want-to-learn" motivation.

## 4.2 Other deterrents

Table 5 summarizes other deterrents of offering MOOCs suggested in literature. Though not found in institutional justifications, they have to be taken into consideration of MOOC provision.

Table 5. Other deterrents of offering MOOCs

Determents	Sources
Technology requirement	• Nanfito (2013)
Personnel costs	• Hollands and Tirthali (2014)
Heavy demands of time and resources	• Belanger and Thornton (2013) • Kolowich (2013)
Low completion rate	• Clow (2013)
Concerns in the issue of plagiarism	• Billsberr (2013) • Li and Powell (2013)

Institutions need to consider the resources, capital and human labors required to fulfill the technology requirement. The technologies that MOOC providers need to master in order to offer and manage courses may include learning management system, wiki, blogs, videography, and social media (Nanfito, 2013).

Other than technologies, there are also personnel costs involved in provision of courses. They may include faculty members and teaching assistants working in the frontline, as well as supporting technical officers and administrative staff. Hollands and Tirthali (2014) estimate that such personnel expenses may take up 75% of the total cost.

The human efforts and resources required may include a considerable length of time in preparing video lectures and other learning materials, interacting with students, monitoring discussion forums, having course planning meetings and dealing with various issues while the course is active. For example, Duke University had launched its MOOC *Bioelectricity: A Quantitative Approach* on Coursera in 2012. The instructor reported that more than 620 hours had been spent in eight weeks while the course was active (Belanger & Thornton, 2013). The heavy workload of teaching a MOOC may distract the faculty members from doing their on-campus works (Kolowich, 2013).

The effectiveness of MOOCs is often doubted for their low completion rate. Most of the MOOCs have a completion rate of 13% or less (Jordan, 2013). Clow (2013) used the concept "funnel of participation" to explain the high dropout rates in MOOCs, that a portion of participants will drop out in each stage of a course. For instance, the MOOC *Bioelectricity: A Quantitative Approach* offered by Duke University in fall 2012 had attracted 12,725 registrations, among which 7,761 watched at least one video, 3,658 took at least one quiz, 346 attempted the final exam and eventually only 313 earned a certificate (Catropa, 2013).

Institutions may also have concerns in the issue of plagiarism. There are difficulties in verifying user identity in a MOOC environment. Young (2012) reported that dozens of plagiarism cases were found in Coursera, including even the courses without institutional credits. Such phenomenon may undermine the credibility of institutions, especially when certifications and accreditation are granted by the institutions and become parts of its MOOC business model (Davis, Dickens, Leon, Sánchez Vera, & White, 2014).

## **5 Discussion**

The findings of motivations and deterrents complement that of existing studies. Surveys of institutional leaders have found that their main reasons of MOOC-provision are to explore this new method of course delivery, to build overall reputation of the institutions and to attract students (Grajek, Bichsel & Dahlstrom, 2013); while the main reasons of not doing so are the unclear and unproven benefits to institutions or students, and the lack of demand for MOOCs among students (AHEAD, 2014; Grajek, Bichsel & Dahlstrom, 2013). This study further enhances our understandings of these issues by supplementing with literature support and examples of institutions which address the different reasons as their justifications of course provision.

Given only a few years of MOOC development, there is very limited empirical data revealing the extent of which the goals behind the motivations have been achieved, or the concerns behind the deterrents substantiated. For example, although self-marketing is found to be the major motivation of MOOC provision in this study, at present there is no formal study showing its effectiveness in terms of enhancing the brand image of an institution or helping it to reach the target market.

On the other hand, the institutional justification of not offering MOOCs, that the unique values of conventional on-campus education (e.g. personal feedback, encouragement, inspiration induced by faculty members, learning environment and school facilities) cannot be easily substituted by MOOCs, appears to remain an argument more than an evidence-informed decision. It overlooks the potentials of MOOCs to be a supplement of on-campus education (Daza, Makriyannis & Riera, 2013; Oremus, 2013) which is the justification of some institutions to offer courses. However, given the lack of substantial study of the use of MOOCs to enhance conventional education, there is also not much strong evidence to support this justification.

The findings of this study thus suggest further investigation whether provision of MOOCs has led to the desired outcomes of the institutions. While the cost and resources involved in MOOC offering have been relatively well studied, a clear and proven understanding of the benefits of such will facilitate an institution to make a more realistic estimation of the cost-effectiveness of providing MOOCs in its own context.

## **6 Conclusion**

This study has presented a broad range of motivations and deterrents of offering MOOCs, including institutional justifications and those suggested in the literature. It is reasonable to believe that an institution's decision has taken into considerations relevant factors and its own context. The various motivations and deterrents thus reflect the institutions' experience of making their decision whether or not to participate in offering courses. Such experience may be applicable for other institutions with similar situations.

According to the institutional justifications, the motivations at present tend to be exploratory in nature. Provision of MOOCs is seen mainly as a means of self-marketing, as well as of seeking new revenue sources and experimenting pedagogical models. On the other hand, the justifications of not providing MOOCs appear not to take into account the potential, though without strong evidence support, benefits of MOOC provision. This suggests further study to examine the extent of which the objectives of MOOC provision have been achieved, so as to obtain empirical evidence to substantiate the reasons behind institutions' decisions.

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# MODeLing: Reinventing MOOC through a learner-centred approach

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## Abstract

MOOC has taken various shapes and sizes since its early start in 2008 and its boom in 2012. Various education providers, both the residential and open universities had grappled for ways to implement its own version of MOOC in efforts that will address the major issues surrounding this mode of delivering instruction. Backed by its more than 10 years of offering degree and non-degree programs in the distance elearning mode, the University of the Philippines Open University embarked on developing and offering its own MOOC under the framework that it is using for its online courses. The resulting framework, MODeL to stand for Massive Open Distance eLearning, was tested in the two MOOC offerings of the university. This paper intends to: 1). describe the MODeL framework; and 3). present the initial results of the application of the MODeL framework in the university's own MOOC offerings. Data used in this paper came from the content analysis of the process documentation of the university's MOOC Program as well as analysis of the learning activities of the MOOC offerings. Hopefully, the results of this study can guide other universities who are thinking of offering its own MOOC independent of the Western influence and model.

Key words: MOOC; student support services; MODeL; quality framework

## Introduction:

MOOC has become the buzzword in education. Many universities, residential and open universities alike have tried offering its own MOOC and the number is still increasing. While the MOOC model has been around since 2008 (Times Higher Education), it was only in 2012 that the number of universities, professors, and learners who became part of this teaching and learning environment became significant in proportion compared with the numbers in the conventional or residential instruction. The New York Times declared 2012 as the “Year of the MOOC” but according to George Siemens, who together with Stephen Downes created and offered in 2008 the course Connectivism and Connective Knowledge, which has been widely regarded as the first true MOOC, “2013 is shaping up as the “Year of Anti MOOC” (Times Higher Education). In 2013, MOOC was seen to be “*in a period of flux and that criticism is mounting*” (Times Higher Education) because of the “*biggest failing of the big MOOC providers- they are simply repackaging what is already known rather than encouraging creativity and innovation* (Times Higher Education). There are other issues surrounding MOOC in its present form like the perceived intellectual neo-colonialism given the one-way transfer of educational materials from the rich north to the poor south (<http://www.insidehighered.com/news/2013/04/25/moocs-may-eye-world-market-does-world-want-them>); low course completion rate (<http://blogs.kqed.org/mindshift/2013/04/why-do-students-enroll-in-but-don't->

complete-mooc-courses/); quality which hinders acceptance of MOOCs for credit or 2ulfill requirements to earn a degree (<http://www.educause.edu/ero/article/mooc-model-challenging-traditional-education>); and cheating and plagiarism (<http://www.onlinecolleges.net/2012/10/17/the-4-biggest-problems-with-moocs/>). This lead the University of the Philippines Open University (UPOU) to embark on a study on MOOC considering that distance elearning is at the core of what it is doing.

This paper intends to:

1. Describe the UPOU's MOOC MODeL framework
2. Present the initial results of the application of the MODeL framework in the university's own MOOC offerings
3. Provide recommendations which can guide other institutions in developing and offering its own MOOC

#### *The University of the Philippines Open University: Brief Background*

The University of the Philippines Open University (UPOU) is one of the constituent unit of the University of the Philippines, the premier university in the Philippines. Established in 1995, UPOU was mandated to democratize access to quality higher education by offering courses in the distance education mode of instructional delivery. In 2001, UPOU adopted the distance eLearning (DeL) model with its courses offered online through a virtual learning environment. The offering of MOOCs is in line with the university's being a Public Service university and its advocacies for openness in higher education. UPOU also hopes to contribute to the thickening of the literature on MOOC and be part of the continuing discourse on this phenomenon which is proving to change the landscape of education and the essence of universities.

#### Research Methodology:

Data used in this paper were results of the content analysis of the process documentation of the university's MOOC program as well as analysis of the learning activities of the MOOC offerings. Below are some more details on how the process documentation was done:

1. Period covered: October 2012-August 2014
2. Activities covered: Round Table Discussions on the university's advocacy for openness in education vis a vis its mission, vision, and mandates and MOOC's place in the overall scheme; MOOCathon, a design thinking workshop involving the design of the LMS for MOOC; preparations for the offering of the MOOCs; monitoring of the three MOOC offerings.
3. Documentation was done through video and audio recordings of the activities/events and transcribing them later; profiling the MOOC learners; and basic learning analytics which took into consideration the learners' visits to the course site and other activities like viewing the course materials, interaction with fellow learners, and completion of learning activities.

In the content analysis, factors which led to the development of the university's MOOC Framework, MODeL, were taken into consideration. These are aspects which pertain to:

1. Learner centeredness, the perspective that the university has taken since its inception
2. Quality Assurance pillars for distance elearning which subsume the following:



- a. Open Educational Resources (OERs), their use and potential contribution of the university's initiative
  - b. Learning design which promotes social construction of knowledge
  - c. Learner and teacher support
  - d. Assessment, certification, MOOCs for Credit
3. Possible sustainability model

#### Results and Discussion:

*The Journey in Search of its Own Framework.* In the search of its own framework, UPOU considered the following major issues concerning MOOC:

1. Quality of instruction/education
2. Perceived intellectual neo-colonialism
3. Plagiarism or academic dishonesty
4. Completion rate
5. Recognition of Statement of Accomplishment for course completion

#### MODeL as MOOC Framework

MOOC is simply an online course made open. Hence, UPOU drew insights from its more than 10 years of offering academic/degree programs in the distance elearning mode of instructional delivery in an effort to craft its own brand of MOOC. The result is MODeL or Massive Open Distance eLearning. It has the following features and characteristics:

1. It is open. There's no admission requirement for one to participate in the course. It is implied however, that the learner should have a good grasp of the English language which is the announced medium of instruction and since the course is online, a good access to the Internet is also a given. If there are specific qualifications or requirements e.g. a gmail account for one to participate in google hang out, a youtube account, etc, such is also announced when the course is advertised for offering. Anyone who is simply interested about the topic can sign up for the course and be part of the teaching learning environment.
2. The course and the Learning Management System (LMS) was designed for massive enrollment or enrollment which could go beyond 150. The question of when is enrollment considered massive, the minimum number was pegged to 150 (<http://isitjustme.de/2013/01/when-can-a-mooc-be-considered-massive/>) which was based on Dunbar's magic number (<http://www.thersa.org/fellowship/journal/archive/spring-2010/features/the-magic-number>).

*“Dunbar argues that we are only able to manage about 150 contacts simultaneously, our brain is simply unable to deal with more. So, a MOOC only is a MOOC if the number of participants is well over 150. Then it contains multiple overlapping communities and each individual is an active member of only some of those. And only then it becomes 'massive' and technology is needed to keep track of its behaviour, to help its participants, to assess their products.”*

*(<http://www.scoop.it/t/networked-learning-learning-networks/p/3994982398/when-can-a-mooc-be-considered-massive-is-it-just-me-wolfgang-reinhardt>)*

The development of the LMS for MOOC was done through a series of activities which the university dubbed as MOOCathon. It started with a design thinking workshop to discuss the desirable features of the LMS for MOOC participated in by the academic staff of the university who have had experienced being a MOOC learner and have many years of experience of developing and teaching distance elearning courses. The workshop was followed by the competition among teams of programmers to develop or customize the platform based on the desirable features identified as follows:

1. Should be open source
2. Can accommodate multimedia formats of learning content like video, podcasts, texts to accommodate various learning styles and preferences
3. Can allow interaction among learners
4. Can accommodate automated assessments
5. Assessments can be programmed or set for a specific time and duration and will allow video responses from learners
6. Can accommodate future alterations or further customization or integration of additional plug ins for specific requirements of courses

The result is an LMS powered by moodle with the required open source plug ins.

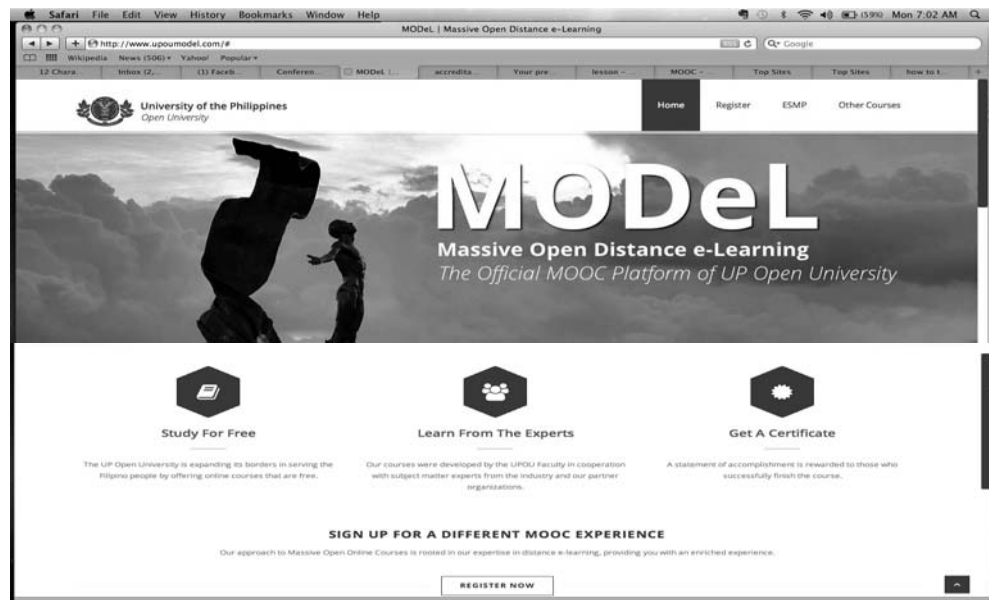


Figure 1. Screenshot of the LMS customized for UPOU's MOOCs/MODEL

The courses were designed to take into consideration that the mode of delivery is distance elearning which, as the term implies, a convergence of distance mode of instructional delivery where the learners and teachers are geographically separated from one another and also from the educational institution which offers the course, and

elearning which maximizes the affordances of modern information and communication technologies to adopt different multimedia formats of instructional content. These formats include video materials, podcasts, and text.

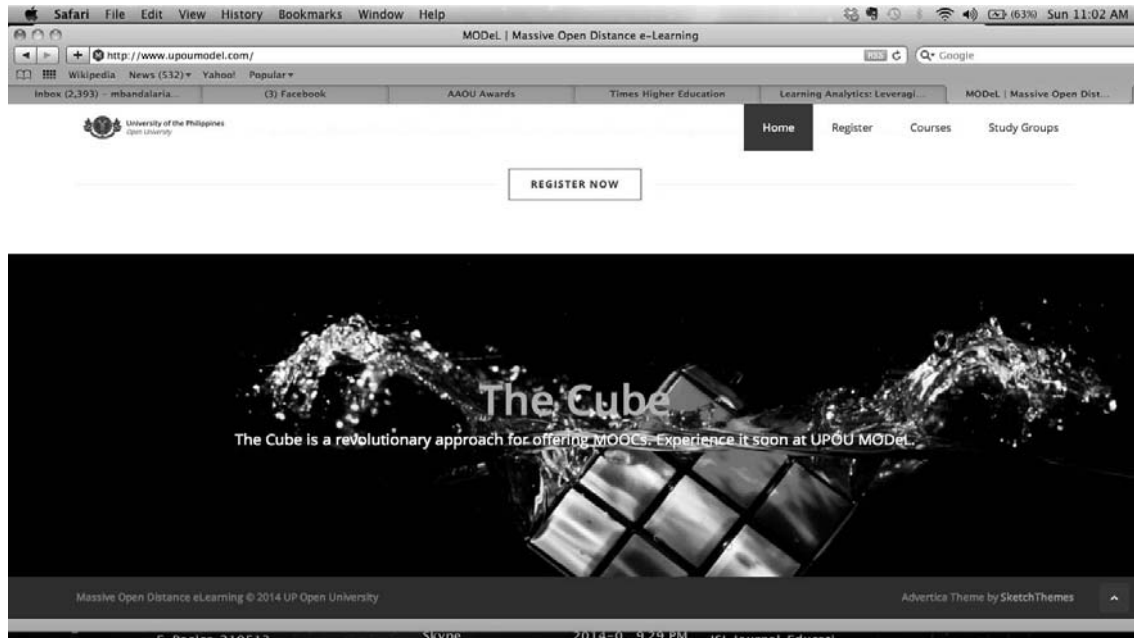


Figure 2. The learning cube which is integrated in the LMS where the MOOC learner can have a choice of his/her learning pathway: access of material through video or podcast or text

3. The presence of the pillars or domains of quality in the quality assurance framework for open and distance elearning. The domains considered were those found to be common in the three QA Frameworks for ODL: Frydenberg (2002)

<http://www.irrodl.org/index.php/irrodl/article/view/109/551>; Institute for Higher Education Policy (2000)

<http://www.americanbar.org/content/dam/aba/migrated/legaled/distancededucation/QualityOnTheLine.authcheckdam.pdf>; and Jung, et. al (2011)

<http://www.irrodl.org/index.php/irrodl/article/view/991/1953>. These domains are:

- a. The backing of an academic institution in the offering of MOOC. This is implied in the domain/benchmark institutional commitment/support, vision/mission/goal, and leadership, governance, and administration. It should be noted that in the early generation of MOOC, learners' learning is certified by the individual professor or course coordinator. The institutional presence and backing up somehow implies that the quality standard that the university adheres to will also be applied to the MOOCs which the university offers.
- b. The course development process. Just like any other course of UPOU, the development of the course package for the MOOC followed the quality circle approach. This approach consists of the involvement of the various experts to come up with quality course package. The members of the quality circle are: the expert who develops the content; the instructional designer who looks into the appropriate chunking of the lessons, and the perfect fit of

learning goals, content, and assessment; the multimedia specialist who determined the media format that will best deliver the content based on the learning goals stated. Another expert is also involved to review the content of the course.

- c. Instruction/Teaching and Learning and the Instructors. Just like any other courses, how instruction is done and who does the instruction are major quality concerns. One of the strengths and in fact, the attraction of the early generation MOOC is the expertise of the professor handling the course. If at all, this is the only assurance of quality of the early generation MOOC given that the professors handling the courses are from well known universities and are the experts in the field. The only concern now is how teaching or instruction is done given the massive enrolment. The combination of instructivism or direct instruction of the content from the teacher/expert and directing them to OERs on the topic; connectivism and constructivism which are both facilitated through formation of online learning communities. The online learning communities also make possible peer assessment. MODeL courses were designed such that the four types of interaction shown to promote social construction of learning had been integrated: learner-content interaction; learner-learner interaction; learner-teacher interaction; and learner-community of practice interaction.
- d. Learner Support. Integration of learner support to a MOOC is also subject to debate and discussion given the large number of students enrolled in the course. In the case of UPOU MOOC, it was just paralleled to other online courses that the university offers which consist of various components. These include the orientation to distance elearning through a Distance Readiness module and video materials; automation of some processes to guide the students like signing-up for the course and accessing the course site; making available through email and links in the portal relevant and basic information on how to go about the course where to seek assistance, etc. and making available a support team to provide technical support to both learners and teachers of MOOC and monitor the course activities in terms of technical requirements (e.g. upgrading the hosting services; ensuring that the site is up and accessible to the students; etc.). The team is also responsible in monitoring learner's activities in terms of course access, viewing of learning materials, and interaction with fellow learners. For instance, the monitoring team can determine who among the students had been inactive for a certain period and appropriate action can be done to prevent the possibility of course drop out.
- e. Assessment. In all contexts of learning, assessment has always been considered as the major consideration or area of quality. Integrated to assessment is the integrity of the process. In the case of most MOOC, assessment is automated in consideration of the number of students. In the MODeL framework, in addition to automated assessment for the quizzes and peer assessment, some assessments had been designed which require learners contextualization of the responses and learners video capturing themselves while answering the assessment questions. The ePortfolio system was also integrated in the course to monitor learner's learning progress and the consistency and authenticity of the responses to the

assessment questions. This assessment mechanism is specifically critical during certification process which is done in addition to the Statement of Accomplishment usually given upon course completion. The assessment mechanism was also designed to address the concern of academic dishonesty, quality of learning, recognition of learning through MOOC for credit towards degree and employment purposes.

4. Combination of OERs and all original materials for instructional content/course materials. The course materials make use of OERs and in the absence of appropriate/relevant OERs, such content is developed/produced as in the case of video materials. The development or production of all-original course materials is also necessary since the selected MOOC topics have developed practice where theorizing can be done. This aspect addresses the concern on the perceived intellectual neo-colonialism which characterizes most MOOC offerings.

5. Sustainability Model. MOOC or MODeL courses should be self-sustaining for it to persist and deliver its promise of making education available especially to the underserved groups and sectors of the society. Assessment and certification of MOOC completed for “MOOC for Credit” and “MOOC for Employment” directions are revenue streams considered in the UPOU MODeL.

#### Pilot Run of UPOU MODeL Courses:

To date, UPOU has offered two MODeL courses. These are the Fundamentals of Business Process Management (BPM101), and Business Communication for Service Management (BUSCOM) industry. These courses are being offered from 26 July until 19 September 2014. The course materials were developed in collaboration with the Business Process Outsourcing (BPO) industry where the Philippines has been regarded as the lead. To date, five weeks after the course started, BPM101 has 364 registered participants with 64% active learners, meaning they took the quizzes – of which there are two to date, interact with the fellow learners and with the content. These 64% will be subject to learner support to guide them through course completion. The remaining 36% is also being subjected to learner support in terms of checking the difficulties they are encountering and assisting them if such is what is required to bring them onboard the course site and reintegrate them into the learning environment. BUSCOM, on the other hand, has 383 registered participants, with potential completion rate of 73%. The whole range of learner support components were integrated into the course including the regular email communication to learners and updating them on the progress of the course.

#### Insights and Recommendations for Consideration:

1. MOOC should address development of skills needed by the industry and requirements of lifelong learners
2. Possible revenue streams should be identified to sustain MOOC offering. Cost associated with MOOC offering like LMS hosting, technical team, teacher/marker's fees for assessment and certification, etc. should be considered.
3. A sound quality framework should be integrated into the course offering
4. Industry partnership can be considered to address initial cost of MOOC development and recognition of MOOC completion certificates for employment
5. The number of those who enrolled is not the main consideration in MOOC but the number of those who were able to complete with learning properly assessed through a rigorous and pedagogically sound assessment mechanism.

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## **The Open University of Japan's MOOC platform: Features and outcomes**

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In 2013, MOOC (Massive Open Online Course) was grown up into a social trend in Japan. Japanese top-class universities started MOOCs by joining international consortia that is, Coursera and edX. Japanese universities and corporates launched Japan Massive Open Online Course (JMOOC, <http://www.jmooc.jp/en/>) Consortium.

As a founding member of JMOOC, the Open University of Japan (OUJ) also opened two MOOCs as the first releases from JMOOC. One of the courses was “NIHONGO STARTER (Japanese primer)”, which was based on the Japan Foundation (JF) standards; another was “Computer system: A primer”, which was remixed from an OUJ regular course.

The OUJ-MOOC platform was powered by “CHiLO Book” system, which was developed by a Japanese NPO, CCC-TIES. It was constructed by some mash-up technologies of multimedia e-textbooks, LMS (Learning Management System) and Social Networking Services (SNS). It was consisted of iBook or e-pub 3.0 packaging (e-books), Facebook (registration and learner community), YouTube (video delivery), Moodle (LMS) and Mozilla Open Badge (certification). In “NIHONGO Starter A1”, we plan to have five or six classes in this fiscal year (April 2014 to March 2015) with the same curriculum and course materials. As of mid-September, the total registrants of Class 1, 2 and 3 was 2686 (include repeated registration among classes).

The main issues of OUJ-MOOC were 1) the scale of the course and 2) the quality and quantity of the interactions at SNS. We were still running the pilot courses but the number of the registrants was similar with those of our regular courses of OUJ and far from other major MOOCs. The result showed the difficulties in which we launched non-Japanese language services in an original brand from Japan and disseminated to the world. By the observation on the posts on Facebook, both interactions between mentors and learners and those among learners were not sufficient.

One of the essential features of MOOCs is to collect and analyze “big data” and to utilize the results for the customization and optimization. However, we have just begun the research on learning metrics and analytics, in participating in the international standardization activities, such as IMS Global Caliper and ADL experience API. In Japan, data sharing and learning

analytics are the most important areas which we should collaborate and concentrate our resources. The legal solution on the use of private data is another issue and some social agreements are indispensable.

Keywords:

Open Educational Resources (OERs), Massive Open Online Courses (MOOCs), Digital textbook, Learning Analytics, International Standards, Open Education

## Introduction

It may be said that 2013 was the first year of MOOC in Japan. After the spring, Japanese top-class universities, such as University of Tokyo and Kyoto University, started MOOC projects by joining international consortia that is, Coursera and edX. Japanese universities and corporates launched Japan Massive Open Online Course (JMOOC, <http://www.jmooc.jp/en/>) Consortium in November 2013. JMOOC is a “General Incorporated Association” in Japan, that is, a NPO/NGO. As of September 2014, 59 Full member (Academic 29: Public 3: Corporate 27), 8 Special Contributing members and 8 Associate members joined. JMOOC is mainly maintained by membership dues. As a founding member of JMOOC, the Open University of Japan (OUJ) developed two MOOCs in order to release them as the initial courses in April 2014.

OUJ is supported by the Bureau of Lifelong Learning Policies under the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) as the national center for lifelong learning in Japan. As a unique open university in this country, OUJ has contributed to Japanese open education and Open Educational Resources (OER) movements (cf. Yamada & Yoshida, 2010). The basic questions on MOOC, such as “can MOOC be a new sustainable model of open education?” and “will MOOC show a new delivery model of higher/tertiary education to reach potential lifelong learners?”, are also meaningful to the existing open universities. In order to examine the effects and influences, OUJ decided to launch the pilot MOOCs as a MOOC provider.

## OUJ MOOC Platform: Features

As of September 2014, JMOOC has three official platforms, “gacco”, “OpeN Learning Japan”, and “OUJ MOOC”. “gacco” (<http://gacco.org/>) is an EdX-based platform managed by NTT Docomo and NTT Knowledge Square. “OUJ MOOC” is a multimedia e-textbook taste platform developed by CCC-TIES Consortium and managed by OUJ. “OpeN Learning Japan” (<http://open.netlearning.co.jp/>) is a domestic integrated learning support platform managed by NetLearning, Inc.

The architecture of the OUJ MOOC platform is shown in Figure 1. Considering the



diversity of users' IT environments, we adopted a combinations of e-textbook (specifically, e-pub 3.0 and iBook), traditional LMS (Learning Management System, specifically, Moodle) and several social networking services (SNS). As some functions of e-textbooks can be used without connecting with the Internet, it was considered as a better solution especially in developing areas. We chose “CHiLO Book” system (Hori, Ono, Kobayashi & Yamaji, 2013), which was developed by CCC-TIES, as OUI MOOC

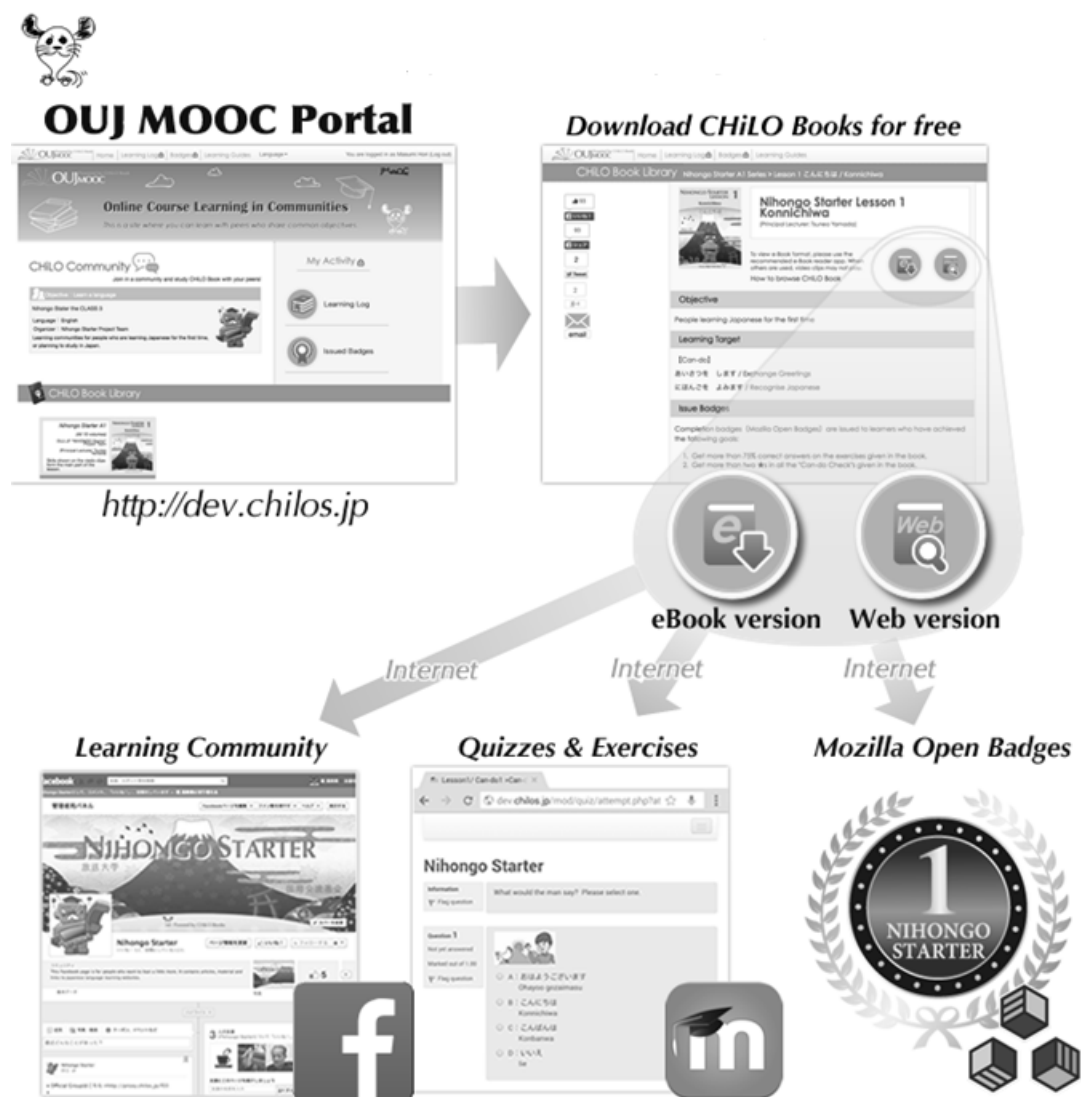


Figure 1 OUI MOOC platform powered by CCC-TIES “CHiLO Book” System: The concept

platform because the system met with our requirements. Each learner visited the online store or our server to download a series of the e-textbooks and studied independently using an epub viewer. The results of various quizzes and self-checks were stored

automatically in the database of LMS. In addition, Facebook™ was used for user identification and learner community maintenance. Using “Group” function, while the provider can identify each user, the learners can ask questions, exchange ideas and share the knowledge among the community. We had two versions of e-textbooks, that is, video-embedded version and video-streaming version. In the former version, while the users watched videos without the Internet connections, it took more time to download. In the latter version, we used YouTube™ for video delivery. Using the “Mozilla” Open Badge system, we issued a “small” badge in each lesson and finally gave her/him a certificate when had collected 10 small badges (cf. Yamada, 2014; Hori, Ono, Kobayashi, Yamaji, Kita & Yamada, 2014).

#### OUJ MOOC Platform: A Case Study: “NIHONGO Starter A1”

In order to examine the tasks and issues when an open university operates MOOCs, OUJ launched two pilot courses from April 2014 (Yamada, 2014). “NIHONGO STARTER (A1)” is an *English* course for non-native speakers of Japanese who are preparing to study in Japan. International students who have no experiences of Japanese language learning can learn basic Japanese in English, which takes up various topics and scenes that students may encounter when they stay in Japan. “Computer System” (Principal lecturer: Yoichi Okabe, President, OUJ) was developed using the course materials of his official TV broadcasting course of OUJ and only Japanese language version available. Both courses were free of charge.

“NIHONGO STARTER (A1)” is based on JF Standard for Japanese-Language Education ([http://jfstandard.jp/pdf/jfs2010\\_all\\_en.pdf](http://jfstandard.jp/pdf/jfs2010_all_en.pdf)). The Standard was developed by the Japan Foundation (JF) and has common definitions for six levels of language proficiency with CEFR (Common European Framework of Reference for Languages). The MOOC is a short course of 10 lessons and corresponds to the first part of Level A1 of the JF Standard for Japanese Language Education (Table 1). Each lesson has 2-4 “Can-do” (competences). The estimated learning time is 45 minutes per lesson. The course texts were authored by Ms. Aki Shinohara, Ms. Sachi Habuki and Ms. Fumie Yanashima at the Japan Foundation.

Table 1 The MOOC content and goals (cf. the Japan Foundation, 2013a)

The MOOC is for the starter (A1) level of Japanese language learning, which is based on JF Standard for Japanese-Language Education ([http://jfstandard.jp/pdf/jfs2010\\_all\\_en.pdf](http://jfstandard.jp/pdf/jfs2010_all_en.pdf)) and the course book, “Marugoto: Japanese Language and Culture (Starter A1)”. *Italic* shows the lesson title in Japanese.

Lesson	Lesson Goals	Can-do
1	Hello <i>Konnichiwa</i>	1) Exchange greetings 2) Recognise Japanese characters
2	Would you say that again? <i>Moo ichido onegaishimasu</i>	3) Use basic classroom expressions 4) Write your name and country in Japanese
3	Nice to meet you. <i>Doozo yoroshiku</i>	5) Give a simple self-introduction 6) Recognise the parts of a business card
4	There are three people in my family <i>Kazoku wa san-nin desu</i>	7) Talk briefly about your family 8) Tell someone about your family, using a family photo
5	What kind of food do you like? <i>Nani ga suki desu ka</i>	9) Talk about your favorite foods 10) Offer someone a drink 11) Talk about your breakfast
6	Where are you going to have lunch today? <i>Doko de tabemasu ka</i>	12) Say what your favorite dish is 13) Talk with a friend about where to go for lunch 14) Read a menu 15) Order food and drinks at a hamburger shop
7	There are three rooms in my home. <i>Heya ga mittsu arimasu</i>	16) Say what kind of home you live in 17) Say what you have in your home 18) Write an e-mail inviting someone to your home
8	It's a nice room. <i>Ii heya desu ne</i>	19) Ask/Say where to put things in the room 20) Visit / Welcome a friend 21) Show someone around your home 22) Recognise the name and address on signs
9	What time do you get up? <i>Nan-ji ni okimasu ka</i>	23) Say the time you do something 24) Talk about your daily routine
10	When is convenient for you? <i>Itsu ga ii desu ka</i>	25) Talk about your schedule for this week 26) Talk about when to have a party 27) Write a birthday card

In “NIHONGO Starter A1”, we plan to have five or six classes in this fiscal year (April 2014 to March 2015) with the same curriculum and course materials. As of mid-September, the total registrants of Class 1, 2 and 3 was 2686 (Table 2, include repeated registration among classes).

Table 2 Course schedule of “NIHONGO Starter A1” in FY2014 (April 2014 to March 2015).

CLASS	Period	Pace-making	No. of Registrants (Facebook)
1	14 <sup>th</sup> April - 18 <sup>th</sup> May	2 lessons /week	467
2	2 <sup>nd</sup> June – 7 <sup>th</sup> July	2 lessons /week	882
3	4 <sup>th</sup> August – 7 <sup>th</sup> September (will be closed on 15 <sup>th</sup> October)	Self-paced	1337
4/5	After December 2014	-	-
		Total	2686

In Class 1 and 2, two lessons were delivered per week by regulating the access to course materials. In Class 3, all course materials were accessible from the beginning and the registrants could take them in her/his own pace.

The registrants learned in her/his style. Some learned independently in their own paces; the others studied together in virtual group activities.

In order to ask questions to the course team and to have discussions among the participants, they could utilize both the class page at the Facebook <sup>TM</sup> and the forums at Moodle. In Class 3, we added Spanish language forum in addition to English language forum at Moodle.

We consider lifelong learners should be autonomous, manage each own learning process and be co-responsible at least partially for their outcomes. Reflecting both the results of quizzes in each lesson and the performance at various social interactions online/offline, the learners were asked to evaluate her/his own achievement by marking the “Can-do” check at the end of the lesson. Using the “Mozilla” Open Badge (<http://www.openbadges.org/>), we issued a “small” badge in each lesson and a “big” badge when he/she has collected 10 small badges.

#### “NIHONGO Starter A1”: Progress Report

(Response from the community)

The course had the top page for the community on Facebook <sup>TM</sup> in order to disseminate

the project to the public and to share the information in the community. According to the description by Facebook™, “Total Pages Likes is number of unique people who like your Page” and it is regarded some positive responses from the community as a whole. As of 17<sup>th</sup> September 2014, the top page of “NIHONGO Starter A1” received 6089 likes and the demography of the “fan (the people who like your Page) “was shown in Figure 3 (age and gender), Table 3 (country) and Table 4 (language). Comparing with other courses in JMOOC and from other Facebook™ pages, both the ratio of younger generation (18-24 and 25-34 years old) and that of female were higher. The result may show simply that the preference on each MOOC depends on the content of the course but we need more data to separate the effects from other factors.

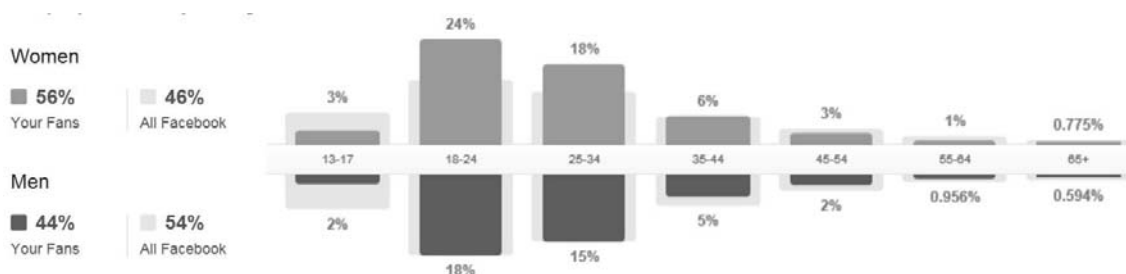


Figure 3 The number of “Total Pages Likes” in Facebook™ to “NIHONGO Starter A1” top page (n=6089, as of 17<sup>th</sup> September 2014)

Table 3 The number of the “fans” of “NIHONGO Starter A1” (As of 17<sup>th</sup> September 2014, Top 10, by country)

Country	Your Fans
Mexico	1,290
Japan	452
Cambodia	434
Colombia	426
Panama	409
Venezuela	209
Brazil	189
Serbia	151
Indonesia	144
Egypt	138

Table 4 The number of the “fans” of “NIHONGO Starter A1” (As of 17<sup>th</sup> September 2014, Top 10, by language)

Spanish	1,913
English (US)	1,897
English (UK)	484
Japanese	470
Spanish (Spain)	382
Portuguese (Brazil)	161
Indonesian	82
Vietnamese	81
French (France)	71
Arabic	70

(Multiple indices of the course registration)

As of 17<sup>th</sup> September 2014, Class 3 has not been closed yet, many registrants continued their learning and we have not completed the minute analyses of the classes. The numbers of the *initial* registrants in each class were 467 (Class 1), 882 (Class 2) and 1361 (Class 3) and the total number was 2710, While the total number of the registrants was not sufficient as a “MOOC”, several indicators showed good performance. The numbers of the *actual* unique registrants in each lesson and “Big Badge” holders in the Class 3 were shown in Figure 4.

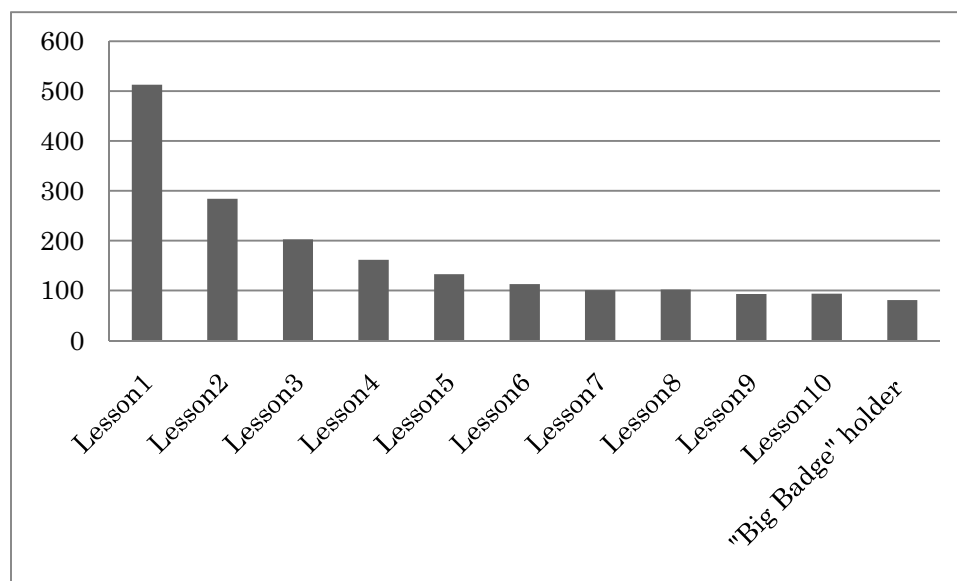


Figure 4 The numbers of *actual* unique registrants in each lesson and “Big Badge” holders (As of 15<sup>th</sup> September 2015, Class 3).

## Discussions

### (Characteristics of the registrants)

Although we developed only English version for “NIHONGO Starter A1”, the registrants from English-speaking countries were less than those we had expected while those from Middle and South America, East and Middle Europe and Arabic countries were more. It showed, in these countries, the opportunities to participate in Japanese language education were still limited. The MOOC showed a new way to reach the potential users which had been postponed. On the other hand, comparing with the major surveys on the numbers of Japanese language learners overseas (cf. the Japan Foundation, 2013b), the registrants from China and Korea were much smaller. We considered it depended on our combination of Social Networking Services.

### (How to realize the massiveness)

Although the number of the registrants increased gradually from Class1 to Class 3, it was still smaller than those of other initial JMOOCs. While we had only English version of the course materials, the audience was regarded to range in different language zones. Both JMOOC and OUJ-MOOC are still in preparation to have dissemination channels to reach overseas and to increase their brand strength. Localization and Multilingual versions are necessary for further dissemination.

### (International standards in e-Learning and digital publishing)

While, as of September 2014, JMOOC has three official MOOC platforms, they have no clear interoperability each other. However, one of the purposes of JMOOC organization is to provide high-quality MOOCs through the collaborations among member organizations. In addition, all of the platforms still have functions to be developed hereafter, such as tools for learning metrics and analytics. The co-use of digital textbook and LMS and the federation of the databases and repositories are also the sharable issues. We examine how to participate in new international standardization activities on e-Learning and digital publishing, such as EDUPUB (cf. <http://idpf.org/edupub-2013-report>) and IMS Caliper (IMS Global, 2013), and how to utilize the international standards for our missions because our platform policy includes the concept of “joint”.

### (International collaboration in Asia and AAOU)

Asian open universities have discussed on some common collaborative framework for regional MOOCs and started discussion with MOOC consortia in other region. The community-oriented MOOCs try to realize the functions through cooperation of

community members and through sharing various resources, such as systems, tools, content, expertise and knowledge, and social networking in order to reduce the cost. As Asian open universities are in diversified contexts, they need some flexible and adaptive solutions for the collaborations to build up Asian MOOCs.

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# Research and analysis of a mobile phone library based on mobile learning

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*[Abstract] Mobile Digital resource is restricted by IP segment from digital resource providers, and mobile terminal does not support all kinds of book reader, can't provide the full text, therefore, Digital content can't be directly accessed by mobile terminals Digital Library. Mobile library improves basing on Digital Library to breaks through the limitation of IP segment restriction, so that the digital library resources can expand to personal mobile terminals, and mobile terminals automatically adapt to different size of display screen, and overcome the limitation that it must be accessed by computer though the fixed network, in order to make digital reading to meet the random reading need, without limits of equipment and geographic position. This paper discusses various problems and obstacles in the construction of the mobile phone library, analysis how to break through the IP segment restriction and geographic position restriction, and solves users' custom to reading in fragments time, how to realize unified query across different database, different mobile operating system adaptive displays, a series of key issues, such as breakpoint after study. Operable ideas and suggestions are propounded.*

**Key words:** mobile learning, mobile phone library, unified query across different database, adaptive display, UOML

Digital libraries allow paper books digitalized, restricted due to restriction of IP segment from various digital mobile terminal resource provider, it can't be directly accessed by the mobile terminal digital libraries, and mobile terminal does not support all kinds of books to read, you can only view the part of the text, can not read the full text.

Mobile library improves basing on Digital Library to breaks through the limitation of IP segment restriction, so that the digital library resources can expand to personal mobile terminals, and mobile terminals automatically adapt to different size of display screen, so everyone can learn, and learn all the time and everywhere. Mobile library services become important symbol as information technology level and service features of library resources service agencies.

Mobile digital reading as a form of digital deepening reading, to overcome the limits such as needing for computers, networks or a fixed position, fulfills the randomness of reading without restriction of equipment and space, greatly improve resource utilization, and expand the scope of services. Digital Library will obtain a broader readership because of advanced digital reading applications.

With the advancement of technology and the development of the times, as well as fragments reading of people needs, establish mobile phone has become a trend in the current library, in line with today's society concept of "everyone can learn, and learn all the time and everywhere." Mobile library information resources can truly digitalize and personalize information services, and diversify range of services.

## 1 The development background and status of mobile phone library

Theoretical study abroad in mobile learning originated in the distance learning research, Clark Quinn(2000) in the electronic magazine "LiNE Zine" published an article on it for the first time defined the concept of mobile learning. Professor Mike Sharples(2010)in Melbourne, Australia, initiated the establishment of the International Mobile Learning Association (the International Association for Mobile Learning, referred IAMLearn), dedicated to promoting mobile learning and situational learning research, development and application (Contextual Learning) respect.

At present, mobile learning research are mainly initiated by the European countries, multiple joint research projects has launched which are: English HandLeR(The Handheld Learning Resource project) and the European Union MOBILearn project, these project members throughout Europe, Australia and the Americas, and Asian countries are not involved in these international research project.

These projects focused on the application of educational technology theory and modern mobile communication technology. There isn't a mature technology model and ready-made products can be learnt from experience which combine with the actual situation and really put the theory to the actual construction of mobile libraries.

Mobile library can be called "Wireless Library" or "phone library", its application can be traced back to around 2008(Kroski E,2008). Toyama University Library developed an I-MODE mobile phone bibliographic queries OPAC system in September 2000, that was the early prototype of mobile phone library, then provide online services such as bibliographic queries, reminders, appointments, continued borrow, immediately notify for I-MODE mobile phone readers.

## 2 The value of the construction of Mobile Library

Through years of resource development, the digital library has a lot of resources, but the utilization of resources has always plagued agencies, how to innovative service model, to provide readers service good, to meet requires of the library service quality evaluation system, these problems are being paid more and more attention now. The birth of the Mobile Library will break all kinds of bondage, and make resources finding anytime, anywhere, he full text would be accessed directly; it will break the digital divide to share knowledge equally.

According to the survey, at present, the per capita amount of device among college students who have the mobile phone, MP4, flat computer, PSP, electronic reader is 1.31. Adults aged 16 -45 years old reading through mobile terminals (mobile newspaper, e-journals, e-books, etc.) accounted for 81.7%, these are meant phones Library era has come.

Mobile Library will bring a lot of value; it adds an important service for library services: fragments of time-oriented service.

The number of devices variety of library services will be greatly expanded, you can face all kinds of portable devices beyond the PC, and in any place, as long as the network can access patency, anywhere can share and instantly interact with all kinds of information modules, and control access to the complete contents of the resource in the library, it can do precise statistical analysis of readers, provide good service personalized, meet the needs of a variety of readers precisely.

### 3 Mobile library construction issues to be addressed

Mobile Library Service has a number of resources mobilized particularity, and complexity of the user brings the user terminal diversity phenomenon, above the library inevitably bring a lot of specific issues to the mobile phone applications, the analysis are summarized below.

#### 3.1 The limits of Digital resources in geographical location and network segment

Provider of digital resources in order to protect the interests of copyright and sales, generally using IP segment geographical constraints, the learner only place in the geographical and regulations through the Internet to learn, you can not learn at home or traveling. Because Mobile Phone Network Ip can't be set, learners can't Enjoy digital library resources by Mobile Phone, but Learners use mobile phones Library, both in geographical or place digital resource provider prescribed, or in other places, you can enjoy the digital library.

#### 3.2 Unified query and read of inter-library resources among different businesses

At present, the domestic industry as a whole does not have a unified digital resource standards and formats, digital resource provider will encapsulate the date of their e-book or electronic journal in order to seize market to protect their own interests, most businesses have their own reader and e-book format, even if the original digital resources also have multiple businesses, can not be directly integrated, cannot be searched and read vertically from a unified entrance.

Even the same document, which is in different provider's database, also has a variety of display formats. Currently there are dozens of various e-book formats, if you want to open the digital resources of different providers, you have to install the corresponding format reader, but some phones cannot install the appropriate reader, you can not browse the complete electronic resources such as e-books and papers, etc.

#### 3.3 Self-Adaptive with different screen sizes and different operating systems

There are more and more users using a lot of different kind of handsets to browse the resource in electronic library. The handset used is also more and more, and with different kind of screen parameters. The mainstream sizes are 960x640, 964x540, 320x480, 480x854, 480x800, etc. Mainstream operating systems are Symbian, Andriod, IOS, and Window Phone and so on. The presentation for the same electronic resource

with different screen size or different operating systems varies a lot.

### 3.4 People are used to shallow reading with Time confetti

With the pace of life gradually accelerated, people are more and more used to shallow reading with Time confetti. Normally it takes some long time to finish reading all the content of an e-book, so it is impossible for deep reading with the free time when people are waiting bus, plan take off.

### 3.5 Resume reading

With the accelerated pace of social, it is more and more difficult for long time reading. Learners have a tend to study in time confetti. So the resume reading problem needs to be resolved in the construction of mobile library. That means system can save the reading progress before exit or emergency powered off. Once user started to read it again, system will jump to the last reading position automatically.

## 4 The construction ideas of Mobile Library

Mobile library based on mobile learning uses a SIM card, a smart phone, a management system model, using B / S network structure, relying on the original platform for building digital library. Mobile service mainly includes three functions: information dissemination portal and mobile OPAC, full unified processing system and a variety of mobile services.

Mobile libraries built on the digital library, design a comprehensive mobile library management system to form a complete mobile digital library, and make mobile libraries a unified entrance, an unified authentication, an unified display and operate, accurate service, proactive services and other demands, all registered learners can access and read.

### 4.1 Copyright protection

Mobile library uses internal and external network IP segment setting technology, the participant's authentication and binding techniques and tools for mobile phones to manage and control other learners. It can enable learners to read the full text of e-books and versatility, academic videos and journals through mobile phones and other devices, eliminate the situation of more than one participants use an account, ensure the resource provider's copyright and interests.

### 4.2 Use technology to solve the problems of unified query and read inter-library resources among different businesses

Use OPAC mobile technology to make multiple data sources access a unified user password authentication and database inquiry , solve multi-database does not support unified retrieval problems.

Students use smart phone to visit 3G / GPRS or WIFI network, enter mobile services system servers, mobile service system server analysis the type of requirement by readers, and directly send back the query results and metadata by searching journals,

papers, e-books and other resources, provide Library catalog and related information for students and teachers through the library's OPAC interface server.

The format of digital resources are different in different mobile libraries, we can use UOML (Unstructured Operation Markup Language) to exchange the data resources provided by different providers , solve the display problems of different formats and readers.

UOML document exchange servers provide the full resources by pictures and text to the reader, readers can view the full text of documents directly by page, view the original document page by page, can also query bibliography that the user can query the library's collection bibliographic information, book exists and specific information about the required books, system will automatically give the related books when some books do not exist.

4.3 Using the method of combine webapp and adaptive technology to solve the problem of adaptive display by different operating systems and different screen size phones.

Mobile library built by webapp, users do not need to install any APPs. Students are able to use the Mobile library to study, search information and other services by different terminals. Mobile library uses a friendly graphical interface for student to use easily, operate easily, and student do not need any training use smoothly. Mobile library occupies little memory space, runs smoothly; users can get a good operating experience.

The client of mobile Library uses adaptive technology to programme, so that resources of mobile library can display adaptively and do not depend on the screen size, do not have hands-zoom automatically adapt to the screen size, always showing the best reading results of full screen automatically displaying.

4.4 Use knowledge points to present part of digital resources

People are used to reading in fragmented time, so mobile libraries have to make a change of the method of content displayed, part of digital resources present knowledge points to the reader, put an entire article or a book, with small pieces of relatively complete text or pictures so that the reader can understand the thought or learn some knowledge in a short time.

Guide the reader in fragmented time to learn some relatively independent knowledge to get better reading results.

4.5 Use technologies such as XML and URI to save breakpoint

Use XML and URI to achieve a unified management of the mobile library resources, and make sure that state of digital resources in the LAN can switch instantly between different terminals by multi-threaded processing and the special mechanisms of the LAN UDP broadcasts. Save the breakpoint of data resource by LiveMesh message management mechanism, ensure that the student are able to easily find the last node order progress learn at any time.

## 5 Conclusion

The progress of information technology for mobile phone library has brought the booming of opportunity, mobile phone library provide a service mode which is advanced、rapid and moveable to display book resources, and provide various accurate and personalized active service for learners, it provides a convenient conditions for students to study in fragmented time. In the process of construction of mobile phone library, there are many difficulties and challenges to resolve such as mobile phone screen size adaptive、the IP network segment limit、Cross-database retrieval and breakpoint continue learning. The advantages of mobile phone library services without being limited by the space and time to make it become a kind of widely used generally, At the same time, it will promote progress on information technology application in library service, and further develop various aspects of the library resource service such as service way, level, object, content and so on.

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# Profiling the characteristics of MOOC platforms

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**Abstract.** This paper presents a panorama of the latest development of massive open online courses (MOOC) platforms. It profiles a broad range of representative MOOC platforms covering the major players as well as the newly established ones across different continental regions. The profile includes a total of 23 representative ones selected from 60 platforms, with their characteristics identified and categorized. It highlights the uniformities and diversities of MOOC provision, based on a number of dimensions such as licensing, support for mobile environment, course languages and accreditation. It reveals how various platforms exhibit different features to position themselves for specific groups of target users.

Major findings of this profiling include: (1) there is no clear relationship among the numbers of partners, courses and students; (2) almost all platforms only provide courses at the tertiary level; (3) open license is not commonly used for course materials; (4) mobile access is well supported by around one-third of the platforms; (5) different platforms vary in preferences for course languages; and (6) four platforms support course provision by users.

Based on these findings, the discussion focuses on: (1) different forms of collaboration between MOOC platforms and institution partners, which show a complementary, rather than competitive, relationship with each other; (2) the need to reexamine the interpretation of MOOC completion rate, in relation to the massive student base; (3) the limited openness of course materials; and (4) the high requirements of network infrastructure and users' digital literacy for studying MOOCs that may constrain the penetration of MOOCs.

**Keywords:** massive open online courses, MOOC platforms, open education

## 1 Introduction

Massive open online courses (MOOCs), in a couple of years since their emergence, have become all the rage. Provision of MOOCs through a MOOC platform enables an institution to reach a much higher number of students than what the institution can afford using a traditional mode of teaching. For example, the University of Pennsylvania has enrolled 2,300,000 students<sup>1</sup> by July 2014 through Coursera since the platform launched in April 2012. In comparison, it has only around 25,000 on-campus enrolling students in Fall 2013.<sup>2</sup>

The rapid development of MOOCs brings forth a potential paradigm shift in the delivery of education (Voss, 2013), which no education institutions, especially open education providers, can afford to ignore. It is widely agreed that academics and other relevant stakeholders have to keep themselves updated about the latest development of MOOCs (Harris, 2013; Li & Powell, 2013; Nanfito, 2013).

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<sup>1</sup> <http://www.upenn.edu/pennnews/news/penn-s-open-learning-opens-doors-campus-and-around-world>

<sup>2</sup> <http://www.upenn.edu/about/facts.php>



Existing studies of MOOCs, however, have mainly focused on a few major platforms and dimensions. For example, Li and Powell (2013) compare the features of MOOC platforms, covering only five platforms (Coursera, edX, Udacity, Udemy and P2PU) in four dimensions (for profit, free to access, certification fee and institutional credits). In Wikipedia,<sup>3</sup> at present there is only a list of MOOC platforms available without further information of their characteristics. On the other hand, existing studies of MOOCs tend to be introductory in nature. Liyanagunawardena, Adams and Williams (2013a) survey the MOOC-related papers published in 2008–2012 and find that, in this period of MOOC development, most papers focused on introducing MOOC and discussing its challenges and trends in general.

While attention has been paid mainly on the high-profile MOOC platforms, other platforms have been launching in recent years, having unique features and being representative in their own kind. For example, Tsinghua University in Mainland China launched a Chinese MOOC platform (xuetangX.com) in October 2013 which is powered by the edX's open source platform and now providing more than 150 courses. The lack of studies to cover MOOC platforms worldwide constrains our understanding of the MOOC phenomenon.

This paper profiles representative MOOC platforms in order to provide a panorama of the current state of MOOCs. It selects a representative sample from a large number of platforms available and categorizes their characteristics, based on which some common and unique features of MOOC platforms are identified. Discussion will highlight notable areas of MOOC development such as use of open educational resources (OER) and support for mobile learning.

## 2 Methodology

This study aims to (1) collect information of MOOC platforms being actively operating, (2) classify the platforms into groups, and (3) identify their characteristics.

Information of MOOC platforms were gathered from several sources. The website *MOOC List*<sup>4</sup> was accessed to generate a list of MOOC platforms in North America, Europe and Australia. As *MOOC List* did not provide updated information of platforms in Asia, two other sources, including the website *taiwanmooc.org* and a white paper<sup>5</sup> produced by China Education Network, were consulted to generate a list of Asian platforms. This results in a total of 60 MOOC platforms.

The 60 platforms were further examined to identify the representative ones for profiling. There were two inclusion criteria: (1) platforms that offered over 100 courses representing the large-scale ones; or (2) platforms that were representative in terms of their kind or were widely recognized in the regions to which they belong. This results in a total of 23 platforms, which are categorized below according to their continental regions.

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<sup>3</sup> As of 31 August 2014.

<sup>4</sup> <http://www.mooc-list.com/>

<sup>5</sup> <http://www.edu.cn/html/rd/MOOC/019.html>

### Group A (above 100 courses)

#### North America

- Coursera
- edX
- Khan Academy
- P2PU
- Tareasplus
- Udemy

#### Europe

- ALISON
- Miriada X
- OpenupEd

#### Asia

- Schoo
- xuetangX.com

#### Australia

- Open2Study

### Group B (below 100 courses)

#### North America

- Canvas.net
- Mongo DB
- NovoEd
- Udacity

#### Europe

- FutureLearn

#### Asia

- ewant
- icourse163.org
- JMOOC
- Shanghai Course Centre
- ShareCourse

#### Australia

- OpenLearning

The profiling of the MOOC platforms was conducted in June–August 2014. The following information about each platform is obtained from their websites:

- Partnerships
- Number of courses
- Number of users
- Course level
- Course languages and categories
- Accreditation (certification, college credits and conferral of degree)
- Licensing
- Mobile operation system

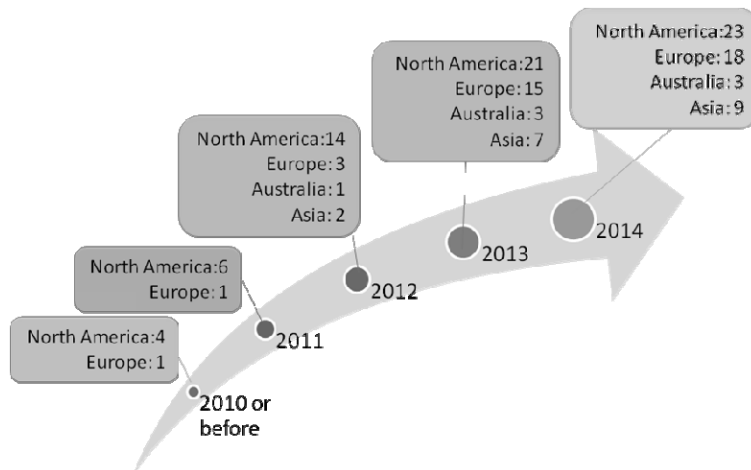
### **3 Profiles of MOOC platforms**

Figure 1 illustrates the year of launching and continental regions of the platforms examined.<sup>6</sup> It is shown that more than half of the platforms (i.e. 39 out of 53) were launched in 2012 and 2013. Several platforms were established in or before 2010, which may however operate as online learning platforms at the very beginning and later change their role to MOOC providers. Hence, the year of launching only refers to the year the platforms started operating, without implying that they are MOOC platforms since that time. For example, Khan Academy was launched in 2006, even before the emergence of the MOOC concept, but it has been later widely categorized as a MOOC platform (e.g. Akanegbu, 2013; Li & Powell, 2013; The Chronicle, 2014).

In terms of continental region, nearly half of the MOOC platforms are located in North America. In Asia there are also a number of MOOC platforms, most of which were launched in 2013. Examining together the launch year and the base of the platforms, it is observable that the trend of MOOC began in North America, and was soon followed by institutions in Europe, Australia and Asia.

For the 23 platforms selected for profiling, the gathered information is categorized using a table format according to a number of dimensions as mentioned above. Since different platforms vary in terms of their transparency, the profiling includes a platform in the tables only when its information available online is sufficient to fill up more than half of the columns of the tables.

<sup>6</sup> Only 53 platforms (out of 60) provide information of their launch year.



**Figure 1.** The development of MOOC platforms

### 3.1 General information

Table 1 provides general information about the platforms, such as number of partners and users.

There appears to be no direct relationship among numbers of partners, courses and users. Coursera, edX and ALISON, which are in partnerships with many leading universities, organizations or publishers, have accumulated a great number of users. Coursera, as the “most massive” platform, has been collaborating with 111 universities over the world, providing 750 courses, with over 9 million users.<sup>7</sup> There are also platforms that have provided a vast number of courses and secured over one million of users, but have much smaller number of partners, e.g. Khan Academy, Udemy and Udacity.

In terms of course level, except Khan Academy, all platforms are solely providing access to materials at tertiary level or for vocational development.

Licensing is another issue that is worthy of our attention. Most of the platforms adopt full copyright to protect their course materials. Only three (i.e. Khan Academy, P2PU and Udacity) adopt Creative Commons (CC) license, and one (i.e. OpenupEd) uses this license partially by advising its course providers to adopt this form of licensing but not restricting them to do so.

About one-third of the platforms provide their own application software for different mobile operating systems. The others either explicitly specify that such feature is currently not available or do not provide relevant information on their site, though this does not mean that the platforms are inaccessible on the mobile environment.

<sup>7</sup> <https://www.coursera.org>, as of 31 August 2014.

**Table 1.** General Information of MOOC Platforms

Platform	No. of partners				No. of courses			No. of users					Course level			Licensing	Mobile OS					
	<20	20-40	41-60	>60	<50	51-100	101-500	>500	>10 thousand	>50 thousand	>100 thousand	>500 thousand	>1 million	>5 million	Primary or below	Secondary	Tertiary <sup>[2]</sup>	All rights reserved	Creative Commons	Android	iOS	Not supported
Group A (above 100 courses)																						
Khan Academy	✓						✓							✓	✓	✓		CC BY-NC-SA 3.0			✓	
Coursera				✓			✓						✓				✓	✓	✓	✓	✓	
edX			✓			✓						✓					✓	*				✓
Udemy	✓						✓					✓					✓	✓		✓	✓	
P2PU	✓ <sup>[1]</sup>					✓					n/a					✓		CC BY-SA 3.0				✓
TareasPlus	✓ <sup>[1]</sup>					✓					n/a					✓	✓		✓	✓		
ALISON				✓			✓					✓				✓	✓					✓
Miríada X		✓				✓					n/a					✓	✓					n/a
OpenupEd	✓					✓					n/a					✓		*[3]				n/a
Open2Study		✓				✓					✓					✓	✓					✓
Schoo	✓					✓		✓								✓	✓			✓	✓	
xuetangX.com	✓					✓		✓								✓		n/a				n/a
Group B (below 100 courses)																						
Udacity	✓			✓								✓				✓		CC BY-NC-ND 3.0			✓	
Canvas.net		✓			✓							✓				✓	✓		✓	✓		
MongoDB	✓				✓			✓								✓	✓					✓
NovoEd	✓				✓						n/a					✓	✓					n/a
FutureLearn		✓			✓					✓						✓	✓					✓
OpenLearning		✓				✓					n/a					✓	✓		✓	✓		
Shanghai Course Centre		✓				✓				✓						✓	✓					n/a
ewant	✓				✓			✓								✓	✓					n/a
ShareCourse		✓			✓						n/a					✓	✓					n/a
icourse163.org	✓					✓					n/a					✓	✓					n/a
JMOOC	✓				✓			✓								✓		n/a				n/a

<sup>[1]</sup> There is no evidence that this platform is engaging in any partnership. ✓ Applicable  
<sup>[2]</sup> By the term "tertiary level" it means that course contents are either at the university level or focusing on vocational developments. \* Partially applicable  
<sup>[3]</sup> The types of licensing are decided by course providers and hence may differ from course to course. n/a Information not provided

### 3.2 Operation

Table 2 provides information related to operation of the platforms, such as languages and categories of courses, and types of accreditation.

It is expectable that information of course languages and course categories to a certain extent represent the specific group of target users for a platform. For course languages, the platforms with the greatest number of users, i.e., Coursera, edX, Khan Academy, Udacity, Udemy and ALISON, provide their course materials in a variety of languages like English, Spanish and Chinese. It is thus reasonable to infer that these platforms are targeting at users worldwide. OpenupEd, as a pan-European initiative, provides courses in European languages such as English, Spanish, French, Irish, Italian

and Russian; while the platforms in Mainland China (e.g. icourse163.org) and Taiwan (e.g. ewant) mostly have their medium of instruction in Chinese, suggesting their different groups of target users.

In terms of course categories, most platforms provide courses in the disciplines of arts, science and social science. Two MOOC platforms (i.e., Udacity and MongoDB) do not have courses in arts and social science, and they focus on the field of science.

Some platforms (i.e., Udemy, P2PU, Tareasplus and OpenLearning) allow users to create and provide courses. This can be a potential source of revenue for the platforms, but runs the risk of compromising the quality of the courses provided. Indeed, upon a closer examination of the user-created courses, we observed that most of them, other than course materials such as video lectures and written content, had little interaction between course creators and learners.

The information of accreditation reflects the strategies that the platforms employed to attract learners. Most of the platforms will issue certificates for students who meet the course requirements. Only a few will offer institutional credits by collaborating with other universities/colleges or through the use of specific credit transfer system (e.g. the European Credit Transfer System). Up till now, only Udacity had attempted to grant an online Master degree program in Computer Science by partnering with Georgia Tech University.

**Table 2.** Operation of MOOC platforms

Platform	Course languages						Course categories			Accreditation			Anyone can set up a course
	Chinese	English	Spanish	Portuguese	Japanese	Others	Arts	Social science	Science	Certification	Institutional credits	Institutional degree	
Group A (above 100 courses)													
Khan Academy	✓	✓	✓	✓		✓	✓	✓	✓				
Coursera	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*		
edX	✓	✓	✓			✓	✓	✓	✓	✓			
Udemy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
P2PU	✓	✓	✓	✓		✓	✓	✓	✓				✓
Tareasplus			✓	✓			✓	✓	✓	✓		n/a	✓
ALISON	✓	✓	✓	✓		✓	✓	✓	✓	✓			
OpenupEd		✓	✓	✓		✓	✓	✓	✓	✓	✓	n/a	
Open2Study		✓					✓	✓	✓	✓			
xuetangX.com	✓	✓					✓	✓	✓	✓			
Group B (below 100 courses)													
Udacity	✓	✓	✓	✓		✓			✓	✓	*	✓	
MongoDB		✓							✓	✓			
NovoEd		✓	✓				✓	✓	✓	*			
FutureLearn		✓					✓	✓	✓	✓			
OpenLearning		✓					✓	✓	✓	*			✓
Shanghai Course Centre	✓						✓	✓	✓	✓	✓	n/a	
ewant	✓						✓	✓	✓	✓			
icourse163.org	✓						✓	✓	✓	✓			
JMOOC		✓			✓		✓	✓	✓	✓	n/a	n/a	

✓ Applicable      \* Partially applicable      n/a Information not provided

## 4 Discussion

The profiling has uncovered the common and unique features among the MOOC platforms. Based on which there are a number of issues worth noting.

There is a close collaborative relationship between a platform and its partners. All platforms in our profiling collaborate with institutions, organizations or companies for providing courses. Some platforms were formed and strongly supported by traditional institutions. For example, edX was founded by the Massachusetts Institute of Technology and Harvard University, and is now partnering with 54 academic institutions, corporations and organizations for offering courses.<sup>8</sup> A few platforms further grant credits recognized by their collaborating institutions to students who have completed the courses. Shanghai Course Centre in Mainland China, as a representative example, serves only the students of its collaborating institutions. The students will gain credits for taking the courses provided on the platform, which are recognized by the institutions they belong to and the institutions that offer the courses. The current operation mode of MOOC platforms thus serves as a complement to, rather than a competitor of, the tradition mode of education. This is consistent with the recent observation that more and more institutions are experimenting with MOOC integration and credit recognition (Sandeem, 2013).

The massive scale of MOOCs in terms of number of students suggests a need to review the interpretation of MOOC completion rate. Our profiling reveals that all platforms already have a substantial number of registered users, ranging from ten thousand to five million above. However, the completion rates of their courses, i.e., below 10% on average (Jordan, 2014; Kolowich, 2013; Parr, 2013), are often regarded as a problem (ELI, 2013; Fischer, 2014) especially considering the huge investment of developing a MOOC. Kolowich (2013) reports the results of a MOOC survey that the median number of enrolment per course is 33,000, and that of completion with a passing grade is 2,600. Despite the completion rate (7.8%), the number of students who complete a course is considerable for a face-to-face institution. Fischer (2014) further points out that, from another perspective, the apparently low completion rate can be explained by the ease of enrolment (which requires usually only a few mouse clicks and no cost). The meaning of completion rate for MOOCs, in this sense, needs to be reexamined.

Many platforms have extended the accessibility of their courses by providing application software for mobile operation systems. Some preliminary figures show that mobile usage accounts for 20% or above of MOOC consumption (Hara, Moskal, & Saarinen, 2013; Hepler, 2014). Nevertheless, access of MOOC materials in a mobile environment requires well-established technology infrastructure (e.g. wide network coverage and high bandwidth). Yuan and Powell (2013) also comment that high digital literacy is required in order to master the MOOC learning environment which involves the use of different digital devices, operation systems and MOOC platforms. These prerequisites of studying MOOCs become barriers for those living in less developed regions and not technologically ready. This is reflected in recent studies that most MOOC students came from developed countries (Liyanagunawardena et al., 2013a) and are well-educated (Emanuel, 2013).

The fact that only a few platforms adopt open license for their course materials is another barrier for MOOCs to penetrate into the developing regions. This is to a certain

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<sup>8</sup> <https://www.edx.org/schools-partners>, visited at 31 August 2014.

extent a contrast to the view that MOOC is derived from the development of open educational resources which features the use of open license (Yuan & Powell, 2013). For most platforms the course materials are openly available but under strict copyright terms, which are not allowed to be copied, translated nor reused (in original or revised form). It comes together with other barriers that education providers cannot translate and localize the course materials into the local language and culture of a developing region, nor disseminate the materials in a form (e.g. printed version) other than their original online version which is highly technologically demanding (Liyanagunawardena, Williams, & Adams, 2013b).

## 5 Conclusion

This paper has profiled a large number of MOOC platforms presenting a panorama of the MOOC phenomenon. The features identified among different platforms reveal the overall development status of MOOC which may not be clearly shown in previous studies focusing on the few major platforms. This study thus serves as an extension on the previous ones by covering more number of platforms and kinds of features.

Although it is suggested that the development of MOOC has reached the peak in 2013 and began to slide into the trough in 2014 (Hype Cycle for Education, 2013, 2014), our profiling has shown that new MOOC platforms keep evolving in 2014. Some of them have unique features in terms of aspects such as course language and accreditation. From this perspective it shows that latest development of MOOC begins to focus on market segmentation for serving more focused groups of users. This is apparent for regional platforms recently launched which provide courses in particular languages.

In a few years of development, MOOC has raised a number of issues waiting for exploration. As informed by this profiling, the proper ways of collaboration between a platform and its partners, and interpretation of completion rate, are two examples significant to determination of the effectiveness of MOOC provision and its future direction.

The emergence of MOOC has created a vision that it may bring more affordable and accessible education to the neediest parts of the world (Bartholet, 2013; Boga & McGreal, 2014). This vision has been realized to a limited extent so far. Many platforms have set barriers to the penetration of MOOCs, such as technological requirements and copyright of course materials. There is a need for MOOC providers, including both the platforms and collaborating institutions, to review to what extent the present MOOC provision has achieved their objectives and could be improved for greater impact.

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# Integration of the organizational communication mechanisms of MOOC and ODL institutions

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## Abstract:

There exist distinctive features, strong points and pending issues in educational communication mechanisms of MOOC and ODL institutions, so it is likely and essential for two mechanisms to integrate their superiorities and complement one another. ODL institutions should proactively explore an effective strategy of advantage integration and adopt the diverse construction of complex linking relation so as to convert the "wide benefit" of MOOC communication into the "deep benefit" of ODL organizational communication; use dynamic expansion of curriculum resources to make "air communication" MOOC high-quality resources touch down; utilize the learning support service throughout the learning process to closely join high quality resources to meet common needs with high quality resources to meet individual needs; adopt the systematic design of the evaluation feedback mode to allow the self-evaluation in learning process and the instructor-student evaluation in organizational communication to supplement each other; use the culture field creation in organizational communication to include individuals in the social learning into the good ecosystem of the organizational learning.

**Keywords:** MOOC; ODL institution; organizational communication; advantage integration; effective strategy

With the aid of information technology, the Massive Open Online Course (MOOC) springs up in the world. The new educational communication form and operation mode bring both challenges and opportunities to the conventional Open and Distance Learning (ODL) institutions. ODL institutions are expected to make objective analysis and judgment, active response and right choice to achieve the seamless joint with the superiority of MOOC and seize the chance to press forward a more open, broad and superior distance education.

## I. Operating characteristics of MOOC communication mechanism

MOOC spreads the first class curriculum resources from well-known instructors of prestigious schools (source) to students all over the world (destination). With respect to the "teaching" and "learning" relation between the instructor and students in the communication process, its basic communication pattern is the "point" to "face" information delivery through a one-way channel, similar to some features of the mass media. At the same time, students carry out mutual assignment assessment and question discussion using communication channels spontaneously linked between them. The operation of MOOC communication mechanism has the following features:

*First, information resource is of high quality.* MOOC provides the highest quality curriculum resources for learners around the world. Known as the "Troika of International Online Education", Coursera, Udacity and edX present the courses from Harvard, Massachusetts Institute of Technology (MIT), Stanford University and other top universities. In China, the first batch of universities to join the MOOC platform include Chinese University of Hong Kong, Peking University, Tsinghua University, Fudan University and other famous universities. Famous instructors, famous schools and famous curriculum brand have become a symbol of MOOC resource quality.

*Second, audience group is universe.* MOOC has reached throughout the world. Hans Deville, Assistant Director-General of Strategic Planning from the UNESCO, thinks one of the characteristics of MOOC is that it is open to any learners with Internet access, and thus MOOC has a large number of learners. The *Introduction to Artificial Intelligence* course of Stanford University was registered by 160 thousand learners from more than 190 countries in the fall of 2011 (Zhang Chao, 2014).

*Third, information design is flexible.* Compared with traditional textbooks and classroom, the information form of MOOC is novel and flexible. MOOC deconstructs and recombines the traditional curriculum resources. A lesson is broken down into several micro-videos, each of which focuses on one knowledge point with the length of 10 minutes or so generally. The video clips are selected and assembled based on new teaching ideas. This design not only fits the law of relation between the duration of learning attention and learning intensity, but also adapts to the fragmentation of students' learning time.

*Fourth, feedback is interactive.* In MOOC learning, the learning evaluation and question discussion are mainly carried out through the channels between human and machine and between students. Some test questions embedded in micro-videos, just like the level in the game, require the students to give the right answer to watch the remaining video. For example, in 240 videos of Tsinghua University's *Circuit Theory* there are 200 quiz and 11 questions (CCTV- News Probe, 2014). Student assignments are automatically scored by the system. In student group communication, there is the channel for mutual assignment assessment and exchange of views.

While learning the features and advantages of MOOC communication, it should also be noted that the wide distribution of audience group and the socialization of learning process have reduced the organization level of its education communication, and thus brought some problems to be solved. For example, the "one-way" communication from the instructor to most students has limited the two-way feedback of information and the in-depth discussion of questions; organization and guidance of practical teaching is beyond the reach of the cross-border distance learning; "compared with the architectonical and systematic distance education, MOOC has many novel courses, but the courses are very scattered and fail to constitute a complete professional system" (Hao Dan, 2013); learning problems and learning assessment are mainly resolved by self-help or spontaneous communication between learners and lack sound support service and communication feedback mechanism; course learning lacks everlasting motivation, resulting in high churn rate; controllability of remote examinations and authenticity of examinee identity cannot be guaranteed.

## II. Basic mode of educational communication of ODL institutions

Educational communication of ODL institutions has the organizational communication advantages of bi-directional feedback and multi-directional interaction.

Education provided by ODL institutions is supported by remote education platform and technology. The education communication mode and the teaching management mode highlight the openness school education. An important attribute of school education is the implementation of educational communication in the organization operation mechanism and the organization culture atmosphere. It has the basic form of organizational communication and integrates some methods of mass communication, interpersonal communication and intrapersonal communication.

Organization is the ordered group of people who work together in accordance with the specific behavior rules and methods in order to achieve particular goals and tasks. The organizational communication is "the exchange of information between organization and its members, between members and between organizations" (Gu Xiaohua, 2007). ODL institution's organizational communication is a process of information generation, explanation, exchange and feedback at different organizational level of institution, instructor and student, *etc.*. The information includes resource information, learning information, culture information and management information, *etc.*. This communication mechanism has the following characteristics:

1. *The level-wise organizational structure and its system linkage mechanism ensures controllability, coordination and orderliness of distance education communication.* The level-wise network organization structure becomes common feature of ODL institutions. For example in China, the Open University of China and the institutions at different levels of provinces, cities and counties have formed the distance education system covering Chinese mainland. Close cooperation and coordinated operation within the system offer favorable conditions for integration and joint construction of resource information, laying and operation of information channel, as well as teaching management and monitoring.

2. *Deep integration of technology and education provides convenient information channel and good online learning environment for distance education communication.* The development of information technology constantly changes the media form, resource form, teaching mode and learning path of distance education communication. Since entering this century, China's Open University system has transited from the radio and television media to online media, from the one-way communication to the two-way interaction. Online learning platforms with a number of core network courses are universally set up within the whole system.

3. *Establishment of student guidance and support team and opening of multiple two-way channels guarantee the development of learning support services.* ODL institutions' student guidance and support team is composed of numerous full-time and part-time instructors who convey useful information to guide students and remove doubts through online platform, e-mail, telephone, and a variety of Internet-based instant messaging (IM) software.

4. *Design of teaching activities and establishment of learning organization constitute the stable and effective exchange and interaction relation in the distance learning.* A series of organized distance interaction activities are implanted into the instructional design, such as topic discussion, cooperative practice and mutual assessment. Class or study group is formed as an organizational communication method to strengthen the effectiveness of cooperative learning.

Certainly, ODL institutions' educational communication also has some limitations and pending problems. For example, the different educational function determines the limitations of ODL institutions' academic strength. The effort of only one institution

hardly creates many famous brand curriculum resources. Non-diploma education has limited curriculum development fields and communication channels. The exchange of learning is limited within the organization members and between instructors and students within the organization, so that it cannot access the cross-boundary interactive channel of socialized learning groups. In terms of information processing, most curriculum resources need further exploration on how to achieve reasonable deconstruction and restructuring of teaching units.

### III. Strategy selection of integrating advantages of two communication mechanisms

In educational communication, course teachings of MOOC and ODL institutions are of the same or similar nature in terms of classification and feature, such as highly IT-dependent character, digital resources, online media channels, and wide audience coverage. Meanwhile, they both have their communication advantages and pending problems. Therefore, it is possible and essential for two communication mechanisms to integrate their superiorities and compensate one another. ODL institutions can further improve the organizational communication mechanism by exploring and using effective strategy of advantage integration in the following levels, so as to improve the quality and effectiveness of education communication.

*1. Diverse construction of compound linking relations -- to convert the "wide benefit" of MOOC communication into the "deep benefit" of ODL organizational communication.* The openness of ODL institutions is not only reflected on education service conceptions, teaching and management modes, but also in the construction of curriculum system and the internal and external relation status of educational organization and study organization. When describing organizational communication features, Catherine Miller believes that "the diversity of organizational structure shown in relative relation poses a huge impact on our communication behaviors" (Hu Hening, Ye Yuzhi, 2004). The open compound linking structure can produce positive impact on many aspects of ODL organizational communication. Establishment of such relation structure is guided with the curriculum integration, and then extended to the student linking, instructor linking and instructor-student linking in and out of the organization.

*(1) Course integration.* High quality and selectivity of MOOC provide a new design dimension for ODL institutions' curriculum construction. MOOC can be not only reasonably embedded in the major curriculum system of academic education, but integrated into the curriculum group of non-academic education. There are three ways of MOOC integration. First is to directly embed the selected MOOC into the curriculum system based on the structure law of knowledge hierarchy, giving credit for MOOC certificate. Second is to integrate the relevant contents or resource "members" of MOOC with the ODL institutions' self-built resources provided that copyright issues are resolved, so as to achieve unity between the universality of discipline theory and the particularity of regional practice. Third is to explore to build own MOOC platform.

*(2) Student linking and instructor-student linking.* Student linking in cMOOCs learning is broad and free, but "the spontaneity, informality and uncertainty of collaborative exchange is a big challenge for learners" (Fan Wenqiang, 2012). Under the circumstance that ODL institution accepts MOOC, on the one hand, it can use MOOC learning exchange platform for cross-border expansion of student exchanges; on the other hand, it can take advantage of organizational communication to change the loose relation of "student linking" into cohesive and stable relationship for interaction among

learning organization members, enhance the communication between instructors and students, and thus play the role of organizers and "opinion leaders" (instructors or students) to promote the question deepening, knowledge internalization and capacity strengthening in the deep interaction.

(3) *Instructor linking*. Under the cooperation framework between institutions, make use of cross-institution instructor training, information exchange, cooperating operation and other method to constitute a communication chain featuring functional convergence, idea connecting, method fitting, and unblocked information exchange among MOOC instructors, curriculum principal instructors (ODL institution), and course consulting instructors (Learning Center).

2. *Dynamic expansion of curriculum resources - make "air communication" MOOC top quality resources touch down*. MOOC restructuring of the traditional curriculum resources and information exchange of cMOOCs "student linking" have changed people's perception of curriculum resources, that is, the statically presented teaching materials are replaced by dynamically extensible digital resources. ODL institution should make resource development through multiple channels in the operation of organizational communication mechanism so that the universal resource of MOOC can be closely integrated with the regional needs.

First, the advantage that the institution's teaching team is familiar with actual social needs in the region is combined with the advantage that MOOC lecturers are based on scientific frontier knowledge. The supporting construction of localized teaching resources and the industry practice case study and guidance is allowed to strengthen the effectiveness of resources that unites theory and practice, and cultivate students' capabilities to adapt to the actual complex exchange and operation of the local industry.

Second, ODL institution's practical teaching resource is blended with MOOC's theoretical essence. Making full use of teaching practice base, experimental facilities and equipment, and regional social practice environment can offset the shortcomings of MOOC in teaching practice.

Third, in the linking interaction between students, learning organization members are guided to focus on the actual problems in the region or industry, exchange ideas, knowledge and professional experience, and promote the continuous derivatives of curriculum learning resources. In addition, the "director" role of the instructors in resource processing are played to sort out, select and integrate the numerous and complex information derived from multiple channels.

3. *Learning support services is accompanied throughout the process -- allow the close connection between the high-quality resources to meet the common needs and high-quality resources to meet the individual needs*. The fast-growing numbers of courses and registered learners directly reflect MOOC development speed. However, because the growth rates of courses and students is much higher than the growth rate of instructors, which makes necessary learning support services very difficult to the timely follow up the students. After integrating MOOC resources or constructing MOOC platform, ODL institution shall make use of sufficient consulting instructors and service platform operation to provide students with personalized support services throughout the learning process. In terms of service mode, it should use online and offline, real-time and non-real-time channels to communicate effectively; in terms of service content, it shall strengthen the navigation role of the instructors to guide and help students to develop individualized learning objectives and learning programs, make a reasonable choice of curriculum resources in accordance with learning objectives and

course levels, build "for my need" course structure, select "for my use" methods and strategies, and improve media accomplishment and learning quality.

4. *Systematic design of evaluation feedback mode -- allow the self-evaluation in learning process and the instructor-student evaluation in organizational communication to supplement each other.* MOOC's online self-test and student mutual assessment have different features and effects from the instructor tracking evaluation and mutual assessment among learning organization members implemented by ODL institution. Online self-test is targeted at each node of knowledge, which plays the role of step-by-step measurement and step-by-step promotion for learning, but the human-computer interaction method is difficult to make qualitative assessment and specific feedback on the higher-level cognitive goals, comprehensive analysis and thinking characteristics in learning. Student mutual assessment is featured by freedom, activeness, diverse evaluation dimensions, rich feedback information, *etc.*, which plays the role of mutual exchange, mutual inspiration and mutual promotion. However, since the assessor and assessee are students at the same level in terms of education level, professional experience and scholarship experience, which affects the assessment standpoint, correctness and authority. Relatively speaking, instructor assessment is more scientific, reasonable and correct and of greater guidance significance, but it is difficult to ensure the in-depth exchange with and detailed feedback to each student. ODL course teaching should combine the above assessment and feedback methods together and make systemic design and reasonable arrangement, so as to form the study evaluation feedback mechanism which makes functions complement one another and accompany with the course study. The mechanism shall be deemed as an integral part of the learning process and an important driver to encourage students to complete the whole study process.

5. *Culture field creation in organizational communication - include the individuals in social learning into the good ecosystem of organizational learning.* Cultural edification is good for optimizing the learning quality, enhancing the motivation and improving the learning outcome. It often requires the influence of an atmosphere, some rules and some behaviors in the group interaction. However, since MOOC studying is an individual behavior in social learning, the learner is relatively in lack of cultural perception and edification in the stable and sustained cooperative learning relation. ODL institution should emphasis on the creation of the culture field in the learning organization. Integrating a variety of beneficial cultural factors and developing students' awareness of cooperative learning can create a good cultural atmosphere. As high-quality resources of prestigious schools, the MOOC embedded in ODL curriculum system is carrying the scientific spirit, attitude toward research, study aspiration and other aspects of cultural factors of the prestigious schools while spreading knowledge. These cultural factors should be integrated with the cultural heritage of ODL institutions, exerting a subtle influence on students with the help of appropriate channels and methods of organizational communication.

The focus of creating the culture field in the learning organization is to establish stable and sustained cooperative learning relation and form cooperative learning ecosystem with teamwork. Learning organization communication is different from the generic sense of organizational communication. Its main function is not to achieve the organization goals and maintain survival and development of the organization, but to achieve the individual objectives of each organization member and to promote the knowledge growth and capacity development of individuals by means of cooperation

and interaction. Therefore, it is necessary to provide adequate right to speak, right of experience and right of seeking knowledge for each member in the cooperative learning and cooperative practice activities through the rules of conduct and interaction within the organization, and enable students to get the sense of collective and the sense of belonging in the learning ecosystem through mutual support, resource share and experience share.

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# Embarking on MOOCs: The OUM experience

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## Abstract

As the leading online distance learning university in Malaysia, Open University Malaysia (OUM) is committed to providing and supporting life-long learning. Towards this aim, OUM recently initiated several innovations including embarking on a pilot Massive Open Online Courses (MOOCs) project. The term MOOC, coined in 2008, was first used to describe an open online course offered by the University of Manitoba in Canada. Since then, it has become an “educational buzzword” (Daniel, 2012) with many public and elite universities offering MOOCs as part of their range of online learning options. This paper examines OUM’s foray into this recent trend in online education, which makes learning material and content freely available to large numbers on the Internet. Apple’s iTunes University was selected as the platform for offering learning material for an initial five courses. The issues and challenges encountered by the University’s Centre for Instructional Design and Technology (CiDT), which spearheaded this project, are highlighted. The paper outlines, in detail, the problems faced – from the seamless collaboration needed to tap the diverse skills of faculty, instructional designers and technical experts to getting faculty buy-in as well as coaching and mentoring. This discussion paper also highlights possible solutions to the challenges encountered by the pioneering team, tips on design and branding of the public site, upload methods as well as criteria for the selection of courses and development of supplementary learning materials such as video lectures, iCasts, and learning segments. As more and more higher education institutions are expected to embark upon similar MOOC initiatives in the near future, it is hoped that this paper will provide perspectives and guidelines to others keen to learn from the OUM experience in this MOOCs initiative – especially on what works and on what could be done differently.

*Keywords:* Massive Open Online Courses, iTunes U, life-long learning, open university

## Introduction

Massive open online courses (MOOCs) are often touted as a watershed in higher education, with some describing MOOCs as the “most important education technology in 200 years” (Regalado, 2012). The MOOC movement is likened to a “digital tsunami threatening to sweep aside conventional university education” (Boxall, 2012). However, MOOCs are not without detractors, with some calling them disruptive. It is not the purpose of this paper to look into the merits and demerits of the MOOC movement – rather this paper accepts that MOOCs offer educationists the opportunity to explore alternative models of course delivery and to relook pedagogy with fresh eyes (Allen & Seaman, 2013). At Open University Malaysia, the Centre for Instructional Design and Technology (CiDT) is tasked with developing all learning material for the University, from print modules to e-content. CiDT is also helming research to explore new ways of

delivering learning material so as to meaningfully engage learners and enhance their learning experience. This paper is essentially a discussion paper, highlighting two such innovations – OUMApp and OUM-iTunesU.

### **New Media Technologies in Learning – OUMApp and iTunesU**

The journey to joining iTunesU started with the development of OUMApp in 2012. As the publishing house for OUM, CiDT (set up in 2002) develops all learning material for the University, the METEOR Group of companies and its collaborating institutions. It has a dedicated team of about 60, comprising instructional designers, editors, graphic designers, desktop publishers and multimedia programmers, who work in concert with Faculty and external subject matter experts to develop varied learning materials. As of May 2014, CiDT has developed 1,141 print module titles, 316 study guides, 751 HTML module titles, 107 video lectures, about 200 learning capsules and segments, 40 audiobooks and numerous courseware.

In 2012, CiDT developed OUMApp which enabled learners registered for OUM's Bachelor in Human Resource Management, Bachelor in Business Administration and Bachelor in Management the option to download learning materials via iPad. Launched in July 2013, this project had an initial offering of 30 modules. By Dec 2013, the platform had been extended to include iPhones, Android phones and Android Tablets. As of May 2014, 104 modules have been uploaded into OUM App.

It was OUMApp which led to Apple Malaysia inviting OUM to join the iTunesU family. Discussions were held in March 2014 to weigh the pros and cons of such an initiative. The advantage of MOOCs is clearly its potential to reach out to a massive number of learners. The recent rapid proliferation of MOOCs, including Khan Academy and Udacity, also argued in favour of OUM venturing onto the MOOCs bandwagon. Given OUM's mission to make education widely accessible to all, it was thus decided that learning material would be uploaded onto the MOOCs platform offered by iTunesU, with a pilot MOOC to be offered by October.

### **Elements to Consider When Developing a MOOC**

There are many issues and challenges which need to be considered when embarking on this initiative. This paper will only attempt to highlight the main problems encountered.

#### *Choosing an Appropriate Platform*

Among the first questions often raised is, "Why iTunesU?" There are many MOOC platforms to choose from – Coursera, edX, Udacity, Udemy. Some are free whilst others impose fees. OUM opted for the Apple iTunesU platform for the following reasons:

- (i) Everything in one area. Course facilitators can easily schedule classes, upload PowerPoint presentations, embed videos, and add PDF files and word documents. And once the content has been downloaded into the library, participants can easily access and start a discussion.

- (ii) iPad and iPhone integration. There is no need to repackage learning material or to chunk video lectures into smaller files as pre-existing learning material from OUMApp can be uploaded in its entirety in iTunesU.
- (iii) The asynchronous nature of iTunesU makes it easier to manage as CiDT needs time to train facilitators to manage a MOOC.
- (iv) Extensive reach. A search for philosophy classes available from iTunesU turned up over 300 choices, including some from top universities in the world.

### *Faculty buy-in and Support*

A MOOC is only as good as its coordinator, due to its need to have 24/7 support. The first phase of this project leveraged mainly on the core team at CIDT which uploaded learning material for five courses, namely, Principles of Corporate Communication, Software Testing, English for Written Communication, Thinking Skills and Problem Solving, and Strategic Management. Selection criteria were based on three principles: these courses are hugely popular, the modules had recently been stringently vetted and upgraded, and there were video lectures for all the courses. These five modules were uploaded in full.

In addition, the first two topics of another 12 modules were also uploaded, bringing the total number of modules uploaded to 17.

However, uploading learning material is only the initial stage – there is the need to train faculty on how to develop suitable material and to manage courses via the iTunesU platform so that they are able to take ownership. Towards this end, Apple Malaysia collaborated with OUM to train selected faculty. A two-day intensive training programme will be conducted in early September, following which a pilot MOOC will be offered.

### *Creating quality content*

As content uploaded onto iTunesU is made available to learners from all corners of the world, it is essential that the content is of benchmark quality. Stringent vetting of the learning material is necessary to safeguard the University's image and branding. Fortunately, CiDT had earlier initiated a module upgrading project called the Red Spine Module project in 2012, and this provided a database of modules that could be uploaded onto iTunesU.

### *Repurposing Content?*

To make sure learners had access to a wide enough range of learning material, links were also created to existing open educational resources, YouTube videos, podcasts, and OUM's iRadio learning segments/ capsules, as well as audio books for the visually impaired.

### *Quality Validation*

All content uploaded onto iTunesU was vetted and approved by Apple to ensure they were of acceptable standards. This was a gatekeeping measure to ensure only content of benchmark quality was made available for public viewing.

### *Design and Layout*

The graphic designers had to come up with a suitable layout and design that encapsulated the University's image and vision. After much deliberation, the team opted for a clean look and feel, with minimal text. The guiding principles for visuals included vitality, vibrancy, happiness and love for learning. Pictures of people from different age groups and walks of life as well as of both gender were selected.

### *Technical Specifications*

Multimedia files in iTunesU had to be converted to MP4, M4V or MOV (image and video) or MP3 (audio). The team experimented with the technical specifications best suited for optimum quality audio and video content.

### *Of Copyright and Fair Use*

Copyright issues can be problematic when developing MOOCs. Besides the usual plagiarism issues, it is important to note that copyright laws vary from country to country, and institutions need to ensure they are not subject to the laws of other countries, as might happen if their student body attracts many participants from a single country (Mangan, 2012).

Infringement of copyright may result in learning material being removed by Apple and the site closed down. To prevent this from happening, extra efforts had to be made to create as much original content as possible. At OUM, the use of non-original material was limited to factual rather than creative material as it was generally perceived that factual material had a lower risk of copyright infringement.

In cases where a cited work was constantly referred to, a caveat was added in the form of a recommendation to learners to buy the book. In video recordings, "popular" music was avoided as much as possible.

As plagiarism can irreparably damage the reputation of an educational provider and devalue the qualifications it confers (Young, 2012), the software Turnitin was used to detect possible plagiarism in the raw material received from writers in the early stages of print module development. The acceptable level was set at 30%. Any learning material that breached this level was sent back to writers for amendment. All material uploaded onto iTunesU has to first meet this criteria.

## The OUM Model

The core team, comprising 15 people including instructional designers, graphic designer, video lecture developers, editors, and multimedia programmers, worked very hard for about six months to plan its debut onto iTunesU. OUM-iTunesU formally went live on 8 July 2014, making OUM the first Malaysian university, public or private, to be accepted on that platform. The implementation plan can be summarised as in Table 1 below:

Table 1: The Implementation Timeline for OUM-iTunesU

Task/Month	April				May				June				July				August				September				October			
Week	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Planning</b> - Identify current situation - Develop the project plan (development team, resources and time frame) - Set the project scope																												
<b>Analysis and Requirement</b> - Define business requirement - Browse through University sites																												
<b>Design</b> - Propose solution for look and feel (banner, thumbnail and cover of modules)																												
<b>Development</b> - Organise content																												
<b>Integration and Testing</b> - Upload all materials - Fine tuning																												
<b>Publish</b> - OUM iTunes U site																												

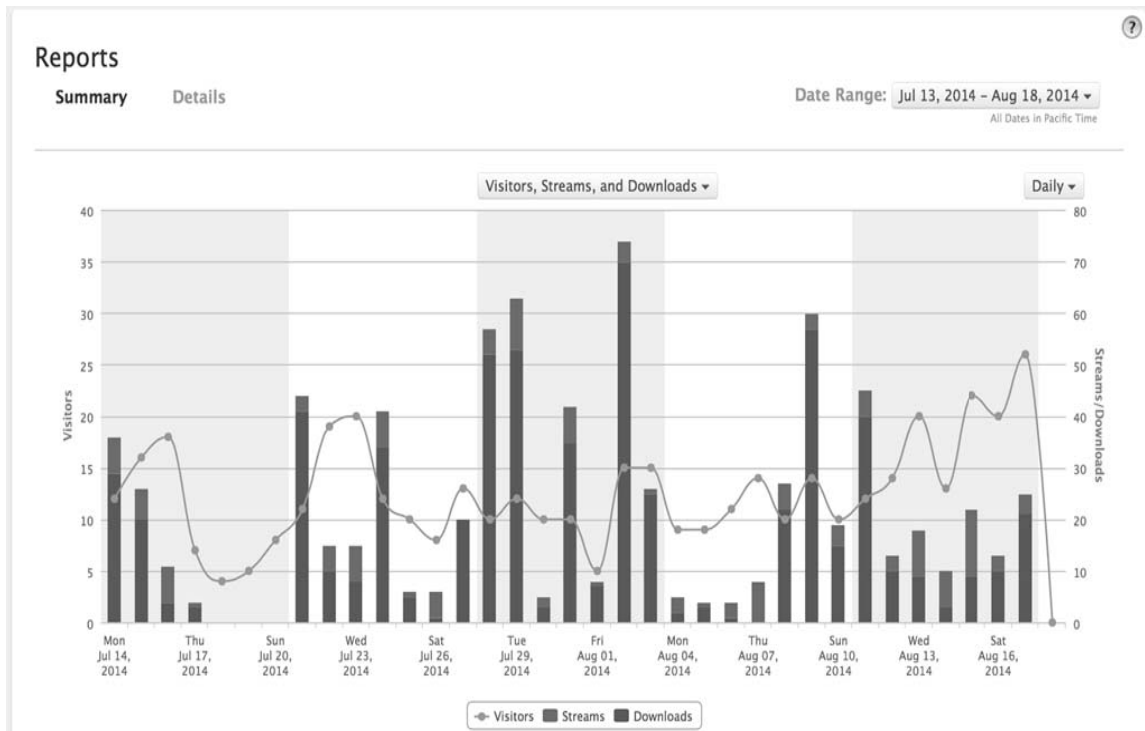
## **Benefits and Feedback**

The most immediate benefit was the boost in enhancing the image and branding of the University. As the first university in Malaysia to be accepted within the iTunesU family, OUM stands amongst other top-ranked universities like Stanford University, Oxford University, Open University Hong Kong and Open University United Kingdom. The debut on to this platform speaks volumes about the quality of OUM's learning material and its commitment to democratising education and making it truly accessible to a broad spectrum of learners from around the globe.

The initial offering of 17 modules was uploaded in PDF colour format, together with slides, video lectures, learning capsules and audio books. Another 104 modules are targeted for upload by the end of 2014.

Feedback (as measured by number of downloads up till 18 August) was tabulated as shown in Figures 1, 2 and 3.

There were 887 downloads of OUM-iTunesU learning material within one month of going "live". As seen from Figure 1, the top five modules downloaded were Strategic Management (494), Thinking Skills and Problem Solving (159), and Software Testing (123), Principles of Corporate Communication (46) and Human Resource Development (6).



Top Courses	Downloads
Strategic Management	494
Thinking Skills and Problem Solving	159
Software Testing	123
Principles of Corporate Communication	46
BBDH4103 Human Resource Development	6
BBPW1303 Financial Management I	6
BBPM2103 Marketing Management I	4
CBKI4103 Knowledge Management	4
ABPG1103 Introduction to Psychology	2
English for Written Communication	1

Figure 1: Top 10 modules with the most number of downloads (8 July - 18 August)

In terms of activity (referring to the number of downloads), Figure 2 on the next page shows clearly that the top five countries which were the most “active” were the United States of America (25.3%), Malaysia (18.7%), Australia (7.47%), China (6.15%) and South Africa (5.34%).

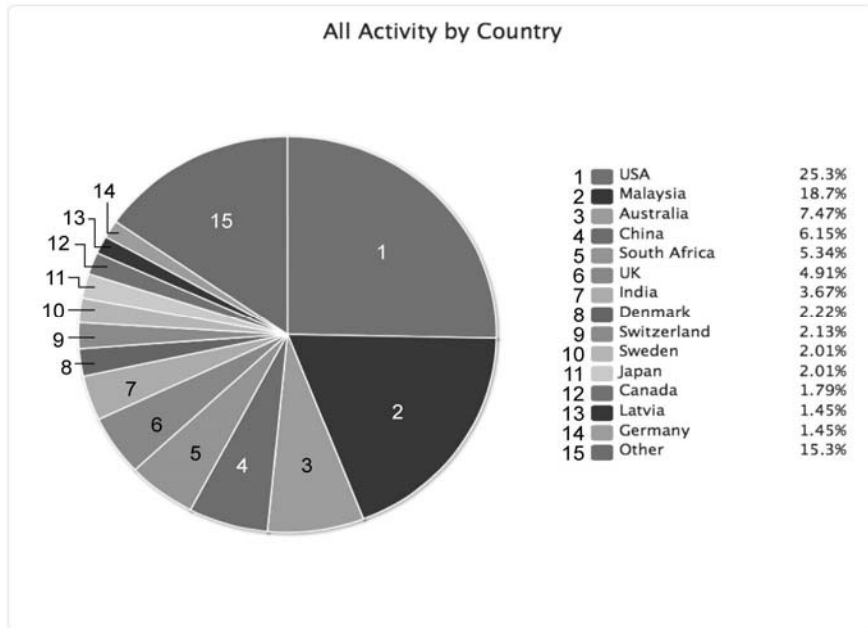


Figure 2: Activity by Country (8 July-18 Aug)

Figure 3 shows the number of visitors by country. Within the first five weeks of going live, the total number of visitors who had checked out OUM-iTunesU was 258. Of this number, 29.4% came from the United States of America, 12.3% from Malaysia, 8.23% from the United Kingdom, 5.84% from China and 5.19% from India. Thus, it can be seen that OUM-iTunesU had managed to grab the attention of potential learners from all corners of the world, from both developing countries as well as the developed nations.

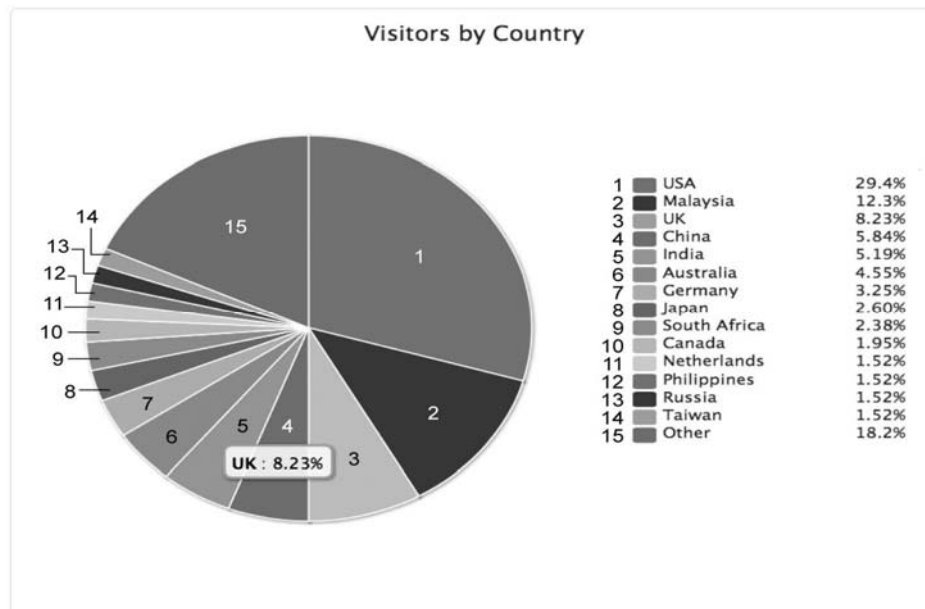


Figure 3: Breakdown of Visitors to OUM-iTunesU by Country (8 July - 18Aug)



Figure 4 shows the breakdown of OUM-iTunesU visitors by devices used. Statistics show iPad and iPhone were the most popular (83.3% of users). However, iPads still led the pack at 56.7%, which is double the figure of iPhone users (26.6%).

The implication seems to be that universities who are thinking of migrating to the iTunesU platform to attract learners can seriously consider giving registered learners an iPad each, the cost of which can perhaps be subsumed into the fees. This might be a viable strategy for OUM's registered learners.

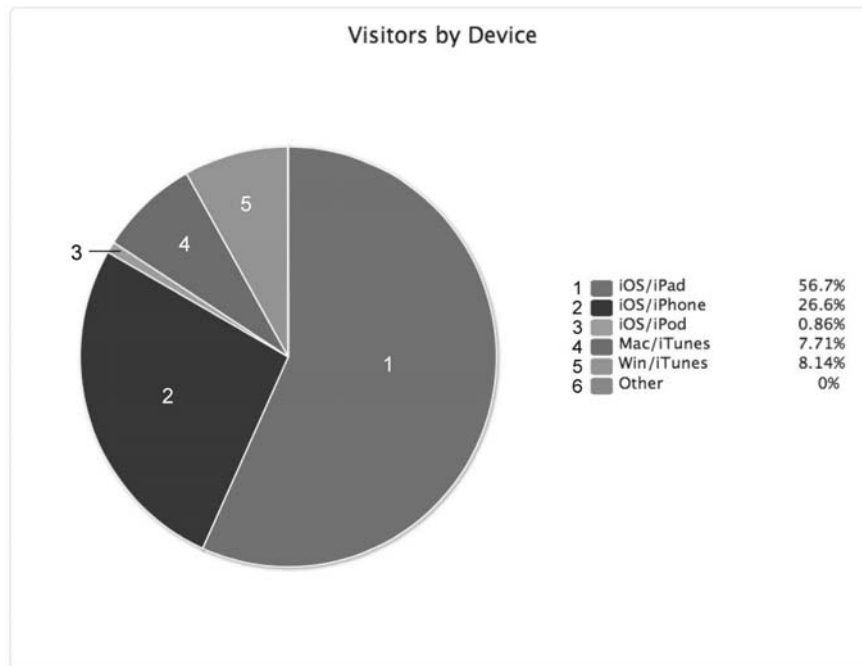


Figure 4: Visitors to OUM-iTunesU by device (8 July - 18 August)

The age group of people who visited OUM-iTunesU is shown in Figure 5. As can be seen, almost three-quarters of the visitors (70.7%) fall into the 25 to 49 age group bracket. This age group probably comprised early or mid-career working adults. The percentage of visitors below the age of 20 and above the age of 50 is much lower (5.5% and 11.4% respectively).

This profile seems to suggest that most people who logged into iTunesU within the research period were working professionals interested in enhancing their career paths or exploring potential career change. As such, it might be worthwhile for universities eyeing the iTunesU platform to consider offering courses which tap into these needs. Potential viable courses include management-related and skills-based training as well self-improvement short courses which improve work and social mobility.

Visitors by Age	
Age Range	Visits
Under 18	0.7%
18-20	4.8%
21-24	10.9%
25-34	36.3%
35-49	34.4%
50-54	7.0%
55 and over	4.4%
Unknown	1.5%

Figure 5: Breakdown of Visitors by Age Group (8 July-18 August)

## Conclusion

To sum up, OUM has made its foray into the MOOC learning environment, with a total of 17 modules presently made available in the iTunesU virtual learning environment. This has earned the University the distinction of being the first University in Malaysia to be in the iTunesU family.

The feedback, to date, has been positive. Within the short span of five weeks, there have been more than 800 downloads from countries all over the world, including developed as well as developing nations. Clearly, OUM's presence on the iTunesU platform has enhanced its image as a provider of world-class education and boosted its branding.

The profile of visitors and type of material downloaded captured in this initial study offers guidelines as to future measures that should be taken into consideration when embarking upon the pilot MOOC, tentatively slotted for October this year.

A research project to evaluate the impact of this pilot MOOC project is in the pipeline. It is hoped that the feedback from this upcoming research study will provide further evidence as to the efficacy of MOOCs in Malaysia as well as shed light on new ways to improve the MOOC initiative in the country.

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# Use of a digital printing system for improving the quality of examinations at Universitas Terbuka

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## Abstract

This paper addresses experiences in preparing semester examination papers using a digital printing system at Universitas Terbuka (UT) in Indonesia. The use of digital printing system for production of examination papers at UT started in the first semester of 2011 to serve over 500,000 distance students. There are several challenges related to administering examination at UT, namely, (1) number of students and examination locations, (2) number and variety of courses, (3) requirements for security in the production of examination papers and administration of examination in many locations, and (4) student mistakes in completing the personal data in the answer sheets. The production process of examination papers using the digital printing system is done mechanically to ensure security and accuracy in order to improve the quality of the whole process of semester examination.

The advantages of using the digital printing system for examination papers can be described as the following. First, it provides pre-printed individual identity for examination papers and answer sheets for each of the students to avoid mistakes in filling out student data on the answer sheets. Second, it improves the security of examination administration by applying *Micro-text* in examination papers so that the examination papers cannot be reproduced illegally. Third, it ensures the accuracy of student personal data by applying a barcode system for examination papers and answer sheets. This system makes sure that the student identity data are pre-printed on the answer sheets and synchronised with the data on the student record system. Accurate data on the answer sheets will accelerate the scanning process of the examination results. Fourth, the system also provides detail information about examination, such as schedule for each courses, in which rooms students take the examination, and characteristics of examination for each course, such as multiple choice or essay type test, and open or close book examination. The digital printing system facilitates UT in administering semester examination and help students have more time to focus and work on the examination. Furthermore, this system improves productivity and efficiency, especially in the printing process of the examination papers and the processing of examination results.

*Keyword: digital printing system, management of printing examination papers, semester examination, security of examination, open and distance learning*

## Introduction

This paper presents experiences in the use of an integrated digital printing system in printing examination papers and answer sheets for semester examination at Universitas Terbuka Indonesia (UT). The technology of the digital printing system can integrate information of student personal data, courses registered by students and information on requirements for course examination, and then print the information on the cover of the examination papers and the answer sheets for individual students based on data from the

student record system. Semester examination at UT consists of several stages, beginning with preparation of course registration data, preparation of examination manuscripts, printing of examination papers, delivery of the papers to Regional Offices (ROs), conducting the examination managed by ROs, delivery of answer sheets from ROs to UT Head Office, processing of examination answer sheets, and announcement of examination grades to the students. These stages are important milestones for UT in providing examination services to students. Activities of each of the stages have been documented in work procedures and have been implemented as part of the internal quality management system based on ISO 9001:2008.

In open and distance higher education system, as implemented by UT, examination requires a high degree of academic accountability, as it is the final measure to ensure the quality of student learning. This is because the students study by themselves supported with tutorial services (face to face and or online tutorials). Semester examination can be administered effectively when it is supported by good preparation that are scheduled and controlled carefully, and followed by the processing of answer sheets and informing results on schedule to students.

The preparation of examination papers, administration of examination, and processing of answer sheets have the same level of importance and their respective timeline. Discussion of this paper will focus on the preparation process, that is the printing of the examination papers. The timeline for preparation of examination papers has to be respected, as semester examination has been scheduled in the academic calendar, in which all academic activities and administrative procedures also have to be respected.

### **Examination Manuscript Preparation for Digital Printing**

Every stage of the preparation of examination papers have certain timeline and clear target to achieve. Printing examination papers requires approximately 11 weeks. This timeline is needed considering the large number of UT students up to 400,000 students. Based on student data in 2014, suppose that each student takes an average of five courses in each semester, the number of examination papers to be printed for the students amounted up to 2.2 million paper per semester.

Before the use of digital printing system, the process of printing examination papers had several stages involving outsource contract workers up to 80 people. These people worked to prepare examination papers including such activities as printing, collating, arranging, and packaging the examination papers for delivery to Regional Offices. All these activities were carried out taking into account the aspects of confidentiality, accuracy, precision, and caution. Nevertheless, there remains the possibility of inaccuracy due to human error in each stage. In terms of security, before the papers were packaged into the box, these papers needed to go through several stages. For example, after the examination papers were printed and stapled, they were counted, arranged in order and put into the envelopes. This particular process posed problems in terms of security and confidentiality of the examination papers during this process.

To save processing time, usually each semester UT predicted the number of examinees using the data trends of examinees for several previous semesters and other considerations. The UT experiences revealed that the prediction of examination papers was not always accurate, as the actual production of the examination papers could be in excess of 2-10% more than examination takers. All of the overproduced examination papers were destroyed after the examination to ensure security.

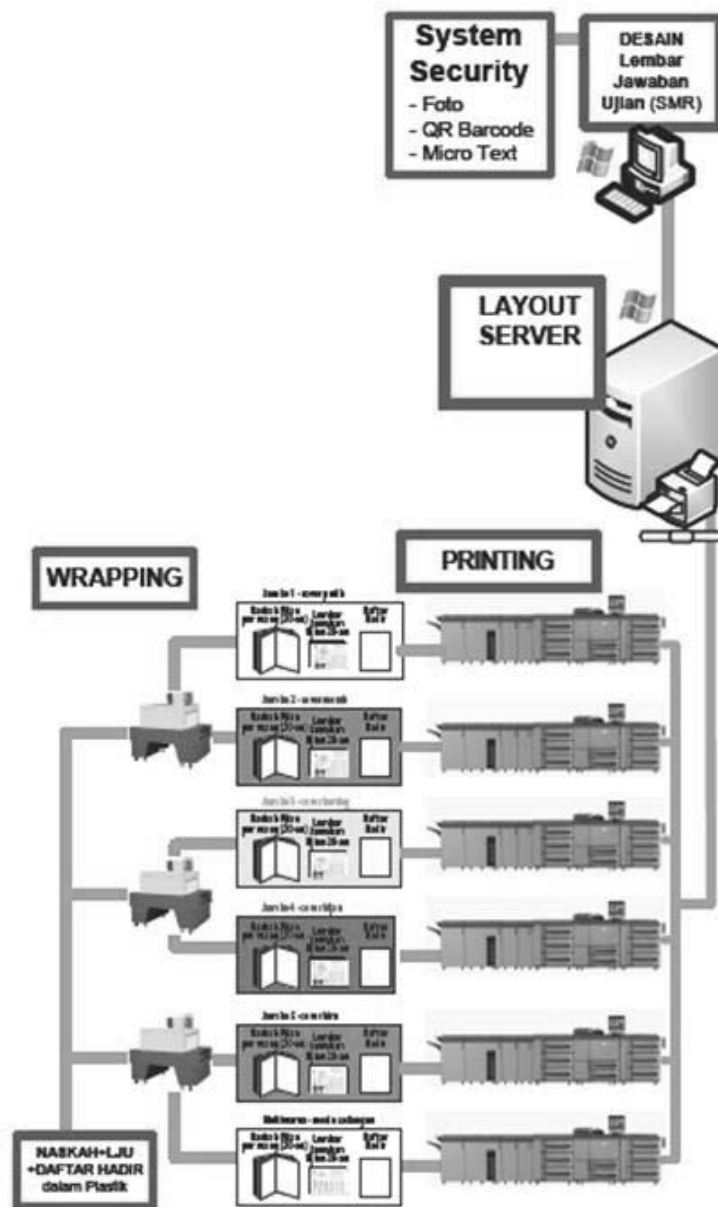
Many of the students' personal data filled out by students into the answer sheets were found inaccurate, and thus the processing of student answer sheets would take longer time. Most of the incorrect data filled out was the student identification numbers (NIM). Consequently, the processing of the student answer sheets would be interrupted due to re-verification of the student data. Based on student data in 2012, although the percentage of this error was approximately merely 2%, the number was significant, considering the total number of examination sheets to be checked was up to 2.8 million answer sheets, totalling about 56,000 answer sheets with incorrect information on personal data per semester.

In order to ensure accuracy and security of examination papers and speedy processing of the answer sheets, the Examination Centre had to come out with effective solution. A team was established and assigned to explore possibilities to address the problem. The team came out with an alternative solution through implementing a digital printing system which has been implemented since 2011.

### **Digital Printing Systems as a Solution**

In the digital printing system, examination papers and answer sheets for each student can be individually produced so that each paper and the printed answer sheet has individual student identity. During the examination, students have already had their own personal data on the examination papers and answer sheets. They are no longer requested to fill out personal data, and they merely write down answers on the answer sheets. The digital printing system has the capability to produce examination papers that are "unique and specific" for individual student identity. This system can produce examination papers and answer sheets that include student personal data, identity of the course, examination schedule, characteristics of the examination, use of micro-text and security system in the form of a barcode on every examination paper, and seat number for individual students taking the examination. In addition, examination papers and answer sheets have also been systematically packed. Using this digital system, the administration of examination is expected to be more orderly, since each examinee has already had examination paper and answer sheet with his/her own name.

With the digital printing system, the preparation time and the number of people employed for production of examination papers can be reduced. In addition, with digital printing system, the production process becomes more efficient, involving four stages, from data preparation, printing, packaging, and delivery. Quality assurance in each stage of the production process remains important to ensure that the printing results are in accordance with the standards. The detail process of digital printing system can be see as follows.



In terms of workflow, the preparation of the examination papers using digital printing system begins with the data preparation of course, course characteristics, and integrated with student registration. These data is then processed using computer application based on variable data printing in the UT server to ensure the papers are printed for a group of 20 examinees per room. In the server, the data have been fitted with a security script that include the following characteristics: (1) type and micro-text of examinations, (2) identity of the examination schedule, (3) QR barcode, (4) identity of students, and (5) characteristics of the course examination. These information is then printed and combined with the examination schedule and its proper colour. UT has five examination scheduled for each day for different course. In order to facilitate the administration of the examination and guarantee the quality of examination results, the cover of examination papers has different colour depending on examination schedule, namely white cover for the first hour, red for the second, yellow for the third, green for the fourth, and blue for the fifth.

1

TUTUP BUKU/BOLEH PAKAI KALKULATOR/TIDAK DILENGKAPI TABEL

2  
I. 1



NASKAH UJIAN  
**SATS4411**  
Metode Statistika Non Parametrik

HARI : PERTAMA  
JAM KE : 1



3

NAMA	: EKA ERNAWATI
NIM	: 016090152
KODE NASKAH	: 37
MASA UJIAN	: 2011.2
UPBJJ/TEMPAT UJIAN	: JEMBER/76/JEMBER/760
HARI/TANGGAL UJIAN	: Minggu/13-11-2011
WAKTU UJIAN	: 07:00-08:30 WIB
RUANG	: 1
NOMOR KURSI	: 1

4

**PETUNJUK**

5

1. Telitilah kode mata kuliah, jumlah soal, dan jumlah halaman dalam naskah ujian ini. Naskah ini terdiri dari 3 halaman yang berisi 3 butir soal. Kalau tidak sesuai, laporkan kepada pengawas.
2. Bacalah petunjuk cara menjawab soal dengan cermat. Tidak akan dikenakan denda terhadap jawaban yang salah.
3. Untuk Ujian pilihan ganda, jawaban dibuat pada Lembar Jawaban Ujian (LJU). Baca petunjuk dibalik LJU tersebut.
4. Untuk ujian uraian, jawaban ditulis pada Buku Jawaban Ujian (BJU), dengan tulisan yang jelas dan mudah dibaca.
5. Jangan mencorat-coret LJU/BJU, gunakan buram atau lembar kosong pada Naskah Ujian untuk mencorat-coret.
6. Tidak diperkenankan meminta penjelasan kepada siapapun yang berkaitan dengan materi ujian.
7. LJU/BJU tidak boleh kotor, basah, terlipat atau robek.
8. Periksa kembali pengisian/ penulisan identitas kemahasiswaan Anda pada LJU/BJU. Kesalahan pengisian atau penulisan identitas kemahasiswaan bisa menyebabkan Anda tidak lulus ujian mata kuliah ini.
9. Setelah selesai ujian, serahkan LJU/BJU dan naskah ujian kepada Pengawas Ujian.

Kementerian Pendidikan Nasional  
Universitas Terbuka  
2011

The digital printing system has been designed to produce unique and specific answer sheet for individual examinee, thus each examinee does not need to fill out personal identity on the answer sheet. However, examinee has to check personal data accuracy, ensure that the barcode is not damaged, write down the examination statement, and put signature on the answer sheet. The digital printing system has been designed to arrange examinee seat at the time of examination and produce table checking to ascertain whether the number of examination papers and answer sheets meet the requirements.





The examination paper and answer sheet data is then entered into the server and the script is ready to be printed on 10 machines with the ability to print digital printing 7,200 pages per hour per machine. Examination papers are printed per 20 examinees per room, and then packaged in plastic wrap. The packaged examination papers are then put into the box with certain identification indicating the Regional Office, examination location, and room.

### **Digital Printing System: Challenges Ahead**

The use of digital printing system in the preparation of the examination papers has several advantages. This system can assure the confidentiality of the examination paper. The RO can manage the administration of examination easier, and students have more time to focus and work on the examination questions. This system also improves work productivity and efficiency, especially in printing and processing of examination papers. This system can reduce the number of workers.

The digital printing system also has its limitations, particularly relating data accuracy. The accuracy of student registration data and course offering should be ensured before the printing process. The accuracy of registration refers to the accuracy of student identity and timeliness of course registration and payment of fees. Data reconciliation is important to be properly conducted. The use of digital printing technology in the preparation of examination papers has added value to efficient operation of the UT in administering semester examination. The investment to develop and implement the digital printing machine is significant.

### **Conclusion**

In the digital printing system, examination papers and answer sheets for each student can be individually produced so that each paper and the answer sheet has personal student identity. The use of digital printing system in the preparation of the examination papers has several advantages. This system can assure the confidentiality of the examination papers. In addition, the RO can manage the administration of examinations easier and students have more time to focus on the examination. This system improves productivity, especially in the printing and processing of examination papers.

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# **A study on establishing effective vertical connections between secondary and higher vocational education based on a credit bank framework**

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## **Abstract**

Under the circumstances of lifelong learning and establishing the credit bank system, there is a pressing demand for breaking through the restriction on conventional education system and achieving the mutual acceptance, accumulation and conversion between the outcomes that resulted from different learning and education means. The unquestioned fact of, to some extent, overlapping and connection in learners' motivation and learning content between the secondary and higher vocational education makes it possible to convert the learning results achieved through different type of education by the means of credit bank system. With the features of openness, being shareable and distance learning, the open education contributes great assistance to those secondary vocational schools which is short of high educational teaching resources and faculty team is disadvantaged. It is a significant exploration of education mode particularly for the nations and regions with relatively underdeveloped education. This study takes establishing the path of accumulating and converting the credit between secondary vocational education and open college, which is under the program of reforming and innovating an open talent-cultivation mode through connecting secondary and higher vocational education based on Yunnan Open University's credit bank framework, as the case, explores the effective solution to properly connect the pre-vocational education and vocational education together, and strengthens the function that vocational education and open distance education help learners improve themselves to be excellent all-round and contribute to the development of society.

**Keyword:** based on the Credit Bank Framework; lifelong learning; connect the pre-vocational education and vocational education together

## **1. Study background**

The lifelong education, proposed by Mr. Paul Lengrand, imply to the sum total of academic education and all of the social education, which run through a lifelong time. Specific period of education is always determined or impacted by the education received previously, and will also determine or impact to education in the future. It is a sort of incorporation between education and the life experience.

However, in education system implemented in China and most other countries, existing education is divided into different levels or stages. The learner has to finish

current period of learning before s/he can step into the next period. The fact is that there is always lack of effective connection or recognition between different curricula education. And this shortage greatly hinders the establishing and development of lifelong education system.

The idea of Credit Bank contributes assistance in solving this problem. All the academic results achieved from no matter what it's learning subject or which learning period, are accepted and accredited as the credit based on the content and the difficulty of the curriculum, and then saved in the "bank" as the same as the money. With this method, the learner can break through the restriction on learning period and academic speciality, and save/accumulate achievement credit and choose the learning subject on their own.

In development of lifelong education and establishment of Credit Bank, China is still in the beginning and exploratory stage. At present China's Education Ministry is conducting an exploration of constructing the open university and implementation of accreditation, evaluation and converting policy between different learning achievement in Beijing, Shanghai, Jiangsu province, Guangdong province and Yunnan province and Chinese Central Radio and TV University. Given the condition of such a remote rural province of multi-national, undeveloped, economically disadvantaged, limited-sized vocational school, poor school condition and poor teaching level, Yunnan Open University integrates the modern vocational education system with the construction of open university. A pilot project of reforming and innovating an open talent-cultivation mode based on Yunnan Open University's Credit Bank framework is implemented to explore effective solution to properly connect the secondary and higher vocational education together and to construct an "intersection" of secondary level and high level talent-cultivation. And some outcomes have been achieved.

## 2. The difficulties in effective connection of secondary and higher vocational education

During the participation in this project, I founded out the following difficulties in connecting secondary and higher vocational education:

### 2.1 Inconsistency in academic selection for secondary and higher vocational education

At present, there are three channels for secondary vocational learners to access to higher vocational education: general college entrance examination, college entrance examination for adult and self-taught examination. All of them are based on the result of academic examination, which are branded with the general college entrance examination. These selections can never assess the vocational skill, employability and ability of starting business, which are crucial in modern vocational education. On the contrary, these examinations always keep the learners away from their continuous learning and consequently, the colleges are losing student source.

### 2.2 Inconsistency in academic speciality setup of secondary and higher vocational education

An important requirement for connecting secondary and higher vocational education is speciality consistency. Unfortunately, the specialities setup in secondary vocational program are many more and detailer than those setup in higher vocational

program. It results in a serious inconsistency in speciality setup of secondary and higher vocational education.

### 2.3 Inconsistency in training objective and curriculum setup for secondary and higher vocational education

The training target for secondary vocational education is to train practical, elementary and secondary professionals, while the higher vocational education aims at cultivating high level practical skillful talent with integrative employability. It should be the extension and advancement of the secondary vocational education. Nevertheless, the reality is that all teaching programs in secondary vocational education only emphasize on the topic of student's employability and focus only on student's practical competency. The graduates from secondary vocational school are not likely to meet the demand of high-level theoretical study and advanced skill improvement in higher vocational college. There is neither yet a unitive curriculum standard which can be adopted nationwide, nor a classified curriculum system designated for different level in China. Those colleges in different provinces and regions varies considerably in curriculum developing ability and speciality construction, which also resulted in inconsistency in curriculum setup for secondary and higher vocational education. Some curriculums set up in secondary vocational school are not designed and developed in higher vocational college, while some are repeatedly designed for both secondary and higher vocational education. A survey about curriculum setup in those secondary schools which conducted a reform pilot project shows that the curriculums developed for similar specialities in both secondary vocational school and higher vocational college are overlapping not only in their name (with 70% sameness), but also the content, such as the major points of knowledge and skill (with 30%-60%, even more than 60% repeating ratio). A fact that the practical skill training class is much more emphasized in higher vocational college than in secondary vocational school has also been founded in this survey. The repetition of curriculum content greatly frustrated learners' motivation, declined the teaching efficiency and has been proofed a waste of education resource.

### 3. The establishment of Credit Bank benefits for connection between secondary and higher vocational education

Apparently, the problems listed above have been negatively impacting the connection between secondary and higher vocational education, and inhibiting the whole vocational education system from rapid, healthy and stable development. The establishment of Credit Bank will facilitate the effective connection between secondary and higher vocational education and boost the development of vocational education and lifelong education from the following aspects:

#### 3.1 To implement a policy of easy entrance and hard graduation, avoid the waste of student applicant source caused by unreasonable selection mechanism

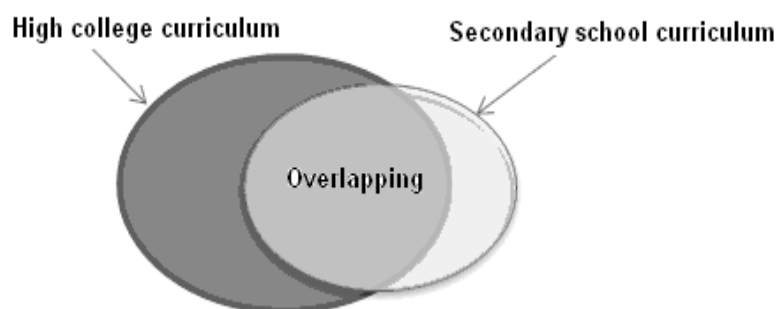
The open university adopts an admission policy of easy entrance and hard graduation and cooperates with secondary vocational school. As long as the learner is willing and has extra energy, s/he can decide to involve in higher level vocational program in Yunnan Open University without undertaking the entrance examination. At

the end of each curriculum, where the learner accomplished the class units and met the requirement about theoretic knowledge, skill assessment and professional ethic, certain amount of credit is granted. The learner can then deposit these credits in the Credit Bank till the amount of credit reaches to the required amount for graduation from this speciality at higher level vocational education. Then the learner can apply for a diploma from higher level vocational college. This policy will set the learners free from the burden of examination-oriented education system and enable them to focus just on the development of their theoretic knowledge and integrative skills. It is also a solution for inconsistency in secondary and higher vocational education caused by unreasonable selection mechanism, and well reflects the meaning of so-called “quality-oriented education”.

### 3.2 To design and develop integration of curriculum, unify the cultivation objective and curriculum standard

Let’s take the curriculum of Analog Electronics Technique from Electronics Technique speciality as an example, the overlapping basic curriculums adopted by both secondary and higher vocational education are: Semiconductor Transistor and Application Circuit, Basic Amplifier Circuit, Integrated Operational Amplifier, Feed-back Circuit, Oscillating circuit, and Power Amplifier. The secondary school added the curriculum of Circuit Welding, Identification and Choosing of Electronic Component and Integrated Device on those basic ones, while the higher level college adopted the curriculum of Signal Generating Circuit and DC Regulated Power Supply and Test Method of Circuit, Anti Noise Interference, Class D Power Amplifier, Switched Capacitor Filter, Switching Power Supply, and DC Converting as the advanced compulsory courses.

We can easily find from the example that the secondary school requires much more practical skill, but the higher level college strengthens deeper and border theoretic requirement and emphasizes more on cultivation of high quality talent. Their teaching content and relation between each other can be illustrated by the diagram below:



The calculation of overlapping part indicates it accounts for about 50% of teaching in higher vocational college.

In the course of accrediting the credit resulted from different specialities, those curriculums for both secondary and higher vocational education are assessed on different levels of occupational position analysis, task analysis, and employability

analysis, and then the teaching and cultivation objective are determined. Based on the curriculum criteria, all the curriculums were re-developed, designed and planed in integration; teaching materials are developed and prepared in the same time. A mechanism of synchronous reforming curriculums for both higher college and secondary school was established to highlight key points of teaching works in higher college and secondary school respectively. Curriculum content and curriculum structure were adjusted; teaching management and evaluation system were improved. These strategies all facilitated the proper consistency between teaching materials and spaeiality curriculum system. The integrative training schema was taken as guideline. In the course of establishing the Credit Bank, accreditation committees of each speciality constituted the terms and conditions of speciality accreditation by comparing theoretic knowledge points and skill points between higher college and secondary, guided by the teaching requirement and teaching content of this speciality. The learning content that secondary school student has commanded but still repeatedly listed in higher college's curriculums are accredited and converted into the credit and deposited in the Credit Bank. Those secondary school students can gain the rest credit for higher college diploma through further studying the rest knowledge and then pass the relevant exams. By this way, the problems of curriculum overlapping in secondary and higher vocational education, unreasonable priority of some courses and lack of continuity will hopefully be solved, and the unification of cultivation objective of secondary and higher vocational education becomes possible.

3.3 The barriers between different specialities were broken down and diverse learning needs were met.

The credit accreditation and converting between different curriculums totally depend on the curriculum content and its key points. As long as there are same content in any two curriculums, effective credit or proportion of credit will be accredited regardless these two curriculums are from a same speciality or not. This provides student the opportunity to choose the courses in accordance with their interest and strength, and subsequently, encourages students to be more proactive and more creative and releases students from shackles of teaching plan and speciality setup. In the long term, the talent cultivation and providing in China should be oriented in economic development. Unfortunately, there is always a gap between development of academic speciality and real economic development. Inter-crossing and merging between different academic specialities become more and more popular. The idea of Credit Bank broke down the barriers between different specialities, and can benefit for the cultivation of diverse, multi-level, high quality and high technique-equipped talents required by Chinese market economy development.

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# **KNOU smart learning: Beyond the future KNOU learning environment**

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*Abstract* As computing environment evolves, the technology for gathering and dealing with user data also evolves together. Especially, the establishment of smart environment, which can provide intelligent decision and personal information and communication service, is based on user big data for personalized information services. In the cloud environment, user big data is processed and taken care of in several ways. Also, learner big data which is related to the learner can be used for making decision to give the learner the appropriate Smart Learning contents, and is also used for basic data for establishing the personalized Smart Learning environment. Thus, we need definition of learner big data for Smart Learning. However, according to the earlier researches and papers, there were not enough linkage between the learner big data and the Smart Learning.

In this paper, we define Smart Learning and requirements for Smart Learning. For this, we defined the smart environment and smart computing, and the features and requirements of smart computing. In order to define concept of Smart Learning, we define the status of Smart Learning, e-learning and the mobile learning. Also we define the classification standard for the Smart Learning and the ubiquitous learning, and adapted this to KNOU(Korea National Open University) Smart Learning environment. Especially, this research defined the KNOU Smart Learning based on our learning environment, and newly defined the KNOU learner big data. The definition of KNOU Smart Learning can be used for establishing future KNOU vision and KNOU Smart Learning development roadmap.

Keywords: Smart Learning, smart computing, Smart Learning environment, learner big data, learning cloud

## **1. Introduction**

Due to the development of IT technology, computers which can provide various services are useful tool between human, object, environment, and various services. According to this factor, Attention and demand for Smart Learning are growing. In this situation, KNOU's roadmap for Smart Learning will be a major standard to establish KNOU's 10 years future and vision. Previous researches about Smart Learning for definition and its' relationship with existing U-Learning should be analyzed. Especially, drastic development of smart computing technology should be defined and analyzed for Smart Learning's detailed demand and, as a result, various smart learning environment as well as demand of smart contents service and commercial, technical environment which try to satisfy these demands will be visualized. These smart learning environments need learner's environmental change of perception along with KNOU's contents supply and Smart Learning service environment construction and connote problems to resolve for these. Smart Learning is different from existing on-line based learning provided as a form of e-learning or m-Learning. Especially way of learning is being triggered through environmental change, learner's IT utilization ability, development of computing

technology, also social, technological development and change of awareness about learning. However, definite meaning of Smart Learning is keep changing and developing along with smart computing technology's development. Important factor of this research is that this research can be used as base information and blueprint of Smart Learning service's foundation, we introduce Smart Learning development roadmap for KNOU. To introduce and design Smart Learning, basic understanding of smart computing technologies are needed and building block of understandings. Smart Learning's definition and development prediction be possible with smart computing technologies. Also, stand on this basis, future Smart Learning service and social requirements will be predictable. Therefore the research defines Smart Learning and its direction of improvement.

The remainder of this paper is organized as follows. In chapter 2, we analyze previous related works and research. The proposed definition, demands and requirements of Smart Learning are described in chapter 3. Finally, we conclude in chapter 3.

## 2. 2. Related Works

When a computer was started to be applied in education, e-Learning appeared in the beginning of 1990s which is combination of computer and internet technology. Especially, since the elastic multimedia communication network, WWW(world wide web) is commercialized and discipline of education is recognized as life-long education, e-Learning, which means learning without any interruption of time and place is considered ideal learning form to the learners. The term 'e-Learning' is combination of 'electronic technology' (e) and 'learning', also it formally started to be used in 2001 spring symposium of The Korean Society for Educational Technology (KSET). 'e-Learning Industry Development Law' in Korea defines e-Learning as learning that make use of electronic means, information communications and broadcasting technologies and Ministry of Education & Human Resources Development defines it as system which everyone can learn by their levels using information communications technology. Definition of e-Learning classified by scholars is as follows

- e-Learning is using Internet technology to transfer variety of solutions to improve intelligence and performance in Rosenberg (2011).
- e-Learning is acting implementing learning and teaching through multimedia and network in You(2001)
- e-Learning is using technology thoroughly or partly to deliver information or expedite learner's skill or acquisition of knowledge in Mantyla (2000)
- e-Learning means using technology to all kinds of studies to plan, convey, select, support, extend and coach it in Hammond (2001)
- e-Learning is internet-enabled learning. It is composed of conveying multiple format contents, administration of learning experience and includes learner, contents developer and expert's network community in Kang (2005).
- System of providing learning experience through Internet and technology, by the purpose of supporting teaching-learning, creating, exchanging and sharing of knowledge in Rosenberg (2011)..

Definitions on the above mainly include the terms 'technology and learning'. In other words e-Learning is conducting teaching and learning using technology. e-Learning continuously renews, stores and draws learning contents or information. Also, based on

communication network, e-Learning shares and distributes learning contents for learners. It is transferred through internet based computer which is globally unified standard network.

m-Learning is combination of the term 'mobile' and 'learning', meaning that learning method using mobile device, mobility of learning device. Detailed definition of m-Learning is referred differently through scholars.

- m-Learning is learning environment based on wireless Internet and communication technology, using PDA, PMP, tablet computer, laptop and smart phone in Chung (2005)..
- m-Learning means users can learn whenever and wherever through mobile device like cell phone or PDA in Clyde (2004)
- m-Learning means exchanging of information through new form of service that fuse mobile device and internet that can provided communication service everywhere in Chung (2010).

Common factor of m-Learning based on the above definition is that it uses wireless Internet technology and mobile device. Therefore, m-Learning is using teaching methods that use wireless Internet device and mobile device to easily get access to teaching-learning sources. Kong (2005) describes these m-Learning's features as learning environment's mobility, accessibility of learning sources, interaction between learning media and reliability of learning activities. Detailed information about each property is in below chart.

### **3. Smart Learning for KNOU**

The term 'smart' in 'smart environment' means that it can construct and deliver personalized information service using various personal information and various communications service at any time or any place. It can provide human based information service environment ubiquitously. Therefore, the term 'Smart' should be understood as the concept that describe one of the form of computing environment which consists of information technology, user interface technology, and communication technology which are combined for the same purpose. Recently, through the term 'Smart Learning', 'smart-government', 'smart-city', 'smart-health', smart environment helps to determine and support user's choice in each fields and simultaneously aims to construct smart environment to maximize user's ultimate achievement of goal and convenience.

If 'smart' means that 'it can construct personalized information service environment', then 'smart computing' is foundation technique which constructs personalized information service framework and can be supported through information service framework by searching or generating individual-optimized contents by interaction with object, situation and environment.

Smart computing is fourth wave of computing environment paradigm and existed as interdependence and mutual supplementation beyond fusion of simple imaginary space and real space. Smart computing's features can be classified as below.

- Smart network: information communications between user and object/environment/situation is always established and user's optimized communication method is voluntarily decided and supported.

- User-optimized service environment: user centered interface and user centered contents are constructed for optimized service environment by dynamic interaction between a user and smart system.
- Individual friendly information service: optimized information should be provided, which fuses augmented space with real space intimately.
- Intelligent context awareness: Awareness of user's situation (emotion, location, ID, time, temperature, weather, device etc.) is inferred from user's background information and semantic context awareness and draw the exact intention with autonomous decision.
- Intelligent object: not a passive object but a producer of situation's information and also be able to act as a user's information service environment producer.

Smart computing technology has features as below

- Ubiquity: If it can be a stage of human informative action or object that can produce and consume context, technology that can be participated in smart computing environment construction by transplanting computing technology will be provided
- Intelligence: Autonomously optimized computing environment can be constructed based on limited information.
- Constancy: Efficient methods of information communications technology and computing environment can be always provided, with the limited time and spaces.
- Autonomy: Smart computing technology that can be applied in mutual interactions can autonomously decide optimized IT service for object, environment and human.
- Individualization: Based on whole smart computing resources about virtualization technology, smart computing technology can construct personal user-centered computing environment.

However, as an educational perspective, smart computing's features can support learner's personalized learning environment, interaction and interrelation occurring between professor, learning environments, learners and intelligent learning contents.

- Learner's personalized learning environment by augmented reality: learner learns with personalized learning contents in any place. Own unique learning contents are supplied between reality, augmented reality and virtual reality. In other words, augmented reality learning environments, constructed for only one learner, personalized learning contents and related subordinate learning contents are provided not only in the real learning environments and virtual learning environments, but also through augmented learning environments to learner.
- Learning interrelation between personalized professor, learning contents and learner: Learning interrelation built based on learning contents, is managed through learning contents. On the other hands, during several learning interactions, personalized learning contents classify learning interactions also construct personalized learning sequence and provide it to learner.
- Intelligent learning contents: Intelligent learning contents are modified according to learner's personal learning environment. But, it does not lost own learning goal and learning intention. Also intelligent learning contents have vital adaptive

process that can be created or modified by learners like learning evaluation or learning progress.

Smart environment is aim to provide personalized service through various smart networks with various information device. This means that there will be a one place where the information from real life and virtual space can be linked to share the contents and information service. In other words, the information service can be given in a personal convergence environment, so called 'the smart environment'. Beyond the situation that human-computer-object are connected with each other, environment that human-object-environment provide augmented reality by interacting based on smart computing technology. Especially, virtual environment for individual's value and real space fused and augmented reality is created. Smart environment is "augmented real environment that real environment is intelligently augmented" that user can not acknowledge or recognize context information about his/her environment. Location of virtual environment created by smart computing and physical environment location does have to be corresponded. Furthermore, environment which thousands of people have each of the identity identifier, computer or object with specific function have their own identifier and networked through mutual interaction with specific situation or location.

### 3.1. Definition of Smart Service

Smart service can be defined variously. But, in this paper, it will be defined as 'information and contents service that are provided from smart environment'. In other words, smart service is the personalized information and contents service that are provided by smart computing technology, which constructs through mutual interaction with real environment and virtual environment. Smart service is applied to every fields of human life so that smart service makes out life more convenient and richer. Smart service has below features.

- Smart service provides user's mobility.
- Smart service delivers adapted information through optimal device with most efficient way.
- Smart service creates virtual space between users' that provides virtual social relationship or human relationship.
- Smart service provides information service with no limitation of space, time and environment.

### 3.2. KNOU's classification models for Smart Service

According to smart service definition, smart computing environment is provided everywhere that human can feel convenient in their lives. KNOU's classification models is service classification that that human can live well with the magnification of smart technologies' arrange of application.

First of all, smart-home service is service that information appliance in house or wireless networks inside of buildings are connected so that it share needed information and transmit to make safe life and convenient environment. For example, users who want to drink milk everyday are not able to drink it because of the expiration date; it let them know with the alarm service and request delivery to the distribution dealer so that they can drink fresh milk conveniently. In addition, it make washing machine to activate at the

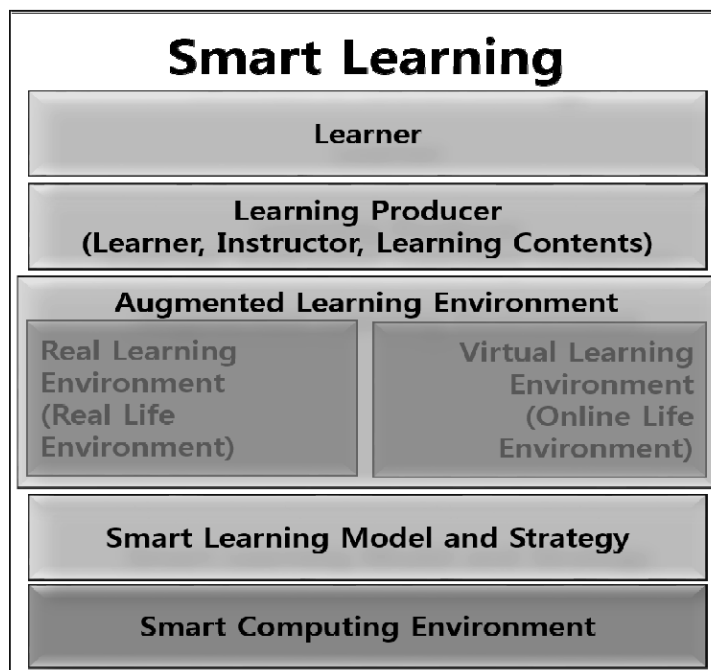
time when the electric charge is cheap, so that user can save electric charges. Second, smart-school service user centered education service that constructs intelligent education facilities in elementary school to university or school of lifelong education and users select their own contents or get provided education on demand. Main users in here are professor and learners. For example, students who entered to the classroom with their own mobile student's ID, their attendance is checked automatically also it detect student's location or school affairs information and service-Learning contents fit to device's condition. Also, in ongoing class it saves the teaching materials according to learner's preference or induces to study own selves by combing teaching materials with learner's comments. After finishing each unit, it moves to the evaluation page and gets evaluated and it transmitted to the system so that it can check students' progress or level and suggest next unit. Third, Smart Learning service provides pleasant space to deal task efficiently for workers. For example with the administrative organization, it automatically cognize worker's ID at the entrance, it provide today's to-do list from computer at the office and they can conduct it selectively. In addition, if worker gets new task, it extract and provide related information from knowledge management system. Based on this, worker can acquire similar task process or method. At the conference, it progressed with the webcam; share and exchange needed information and get approved by the electronic settlement on the spot. When print papers are in shortage, information is transmitted to the dealer so that worker can get papers. For example with the production organization, if attendance is check through ID, it shows tasks done contrast to the goal and can get today's suggested task. Forth, smart-region service uses cutting edge IT technology to solve problems with area traffic/sightseeing/crime prevention/facilities/ environment/damage of natural landscape/disaster and maintain eco-friendly area. With this service, it can provide local people's pleasant health life and increase regional income through revitalized regional economy. For example, it provides pedestrian's navigation system through mobile phone or automatic language translation system for foreign tourist and tele-consult to the old and the infirm. Attach censor to the facilities, checking blaze/damage/invasion in real time to make safe administration of facility and with intelligent parking navigation and parking place information through image recognition, safe parking service makes visitor convenient.

Fifth, smart nation service reinforce ability of state and improve quality of life through construction of smart service's overall realization with upper high speed smart network base and connection of publics/facilities/house/school. Smart-nation need national comprehensive propel strategy to make synergy effect with connection of individually propelled work. If overall national master plan established, it can build IT technology development roadmap by steps and deduct IT's core factor technology also achieve standardization of dissimilar system and upgradability of application makes every resources of nations' intelligent and become networked so that every citizen can provided necessary information. To achieve smart nation, industry service area can be divided into public administration, industrial economy and life service. There are common administration, disaster and safety management, social safety management in common administration and there are business transaction, labor, finance, distribution/transportation, construction/SOC, agriculture, stockbreeding and fishery in industrial economy and life service, finally life service can be classified as living culture, education, environment, health and welfare.

### 3.3 Definition of Smart Learning

Smart learning is the combination of “smart” which means it can construct person centered e-Learning service using various information communications service with no limitation of time and place. Smart learning is personalized learning in smart environment. When learners who want to learn with optimal learning device and personalized learning model, learning strategy and plans for the learner are established dynamically and learning form of real learning environment can motivate the learner.

Smart learning environment is fused with learner’s life environment and virtual learning environment. And the fused smart learning environment can be used as learning resources and through mutual interaction between learner, learning contents and professor acquired knowledge is distributed and reproduced to every member of smart learning



**Figure 1. Smart Learning Architecture**

Figure 1 is concept map that, in real place where wire-wireless network, learning device, learning administration system are applied to smart learning, smart learning considers learners’ demands and information and provide optimal learning contents.

- Smart computing technology: Smart computing technology makes learners enable move between real environment and virtual environment with wire-wireless networks and provides seamless learning environment with learners.
- Real learning environment: Real learning environment means real place where learners learn and study in off-line place(classroom, library, laboratory, etc.) and learning activity occurs in classroom, house, library, museum or etc.. In these places, learners can get customized learning and store necessary information in learning storage.
- Learning producer: Learning producer is distinct with learner and professor who can teach the other learners, trigger or lead learning activity. And there are learning

contents that make new learning contents and learning activity that triggers the chained learning circulation, but in this research leaning producer is defined as leaners, learning contents and professors mainly.

- Virtual learning environment: Online learning contents and learning activity information from real learning environment are combined and virtual learning environment is created by these combined learning contents and information.
- Augmented Smart Learning Environment: Augmented Smart Learning Environment is convergence of Virtual Learning Environment and Real Learning Environment. Augmented Smart Learning Environment stimulates and encourage learners always in whole real life and online activity. Especially Augmented Smart Learning Environment keep in contact with learner and support seamless learning contents and learning environment.

#### **4. Conclusion**

We propose smart learning definition that can be applied to construction and development of smart learning. The proposed smart learning can deal with learning service model and requirement of smart learning. First of all, we try to find out difference between previous u-Learning and smart learning. We characterize smart learning as autonomous decision for learners and intelligent stimulation of learning. Smart Learning keep in contact with learning contents, professors and learning contents. Learning contents production occurs at learners, professors and learning contents. We define Smart Learning components as Smart computing technology, Real learning environment, Learning producer, Virtual learning environment, Augmented Smart Learning Environment. Proposed Smart Learning model can be used for Korea National Open University that can support ideal learning environment.

We have a plan to develop the concrete Smart Learning services that basically use learners' big data.

#### **5. Acknowledgement**

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# **A managerial evaluation of face-to-face tutorials in a distance learning primary education programme**

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## **Abstract**

Open University persist to exist until now because of managerial quality, especially in terms of Face to Face Tutorial (TTM). Face to face tutorials available in Distance Learning Programs Unit (UPBJJ) Semarang since 2012.1 registration period has been managed well up to now. The good management is done for the students' satisfaction so that the quality and learning result can increase. Through the development of management research including of planning (tutor recruitment, tutorial planning, tutorial scheduling; implementing (tutors training, tutorial implementing, tutorials monitoring) by academic staff and administrative staff by giving questionnaires to the students to provide an evaluation of UPBJJ services, and supervision (evaluation of tutors' performance). However, in fact, there were some tutors who were rated less than satisfactory. As a follow-up to the tutors who scored less, they are given a letter of reprimand and another tutor training in order to get better performance.

*Keywords: evaluation, managerial, face to face tutorial*

## **INTRODUCTION**

### **Background**

By 2021, UT aims to become a world-class Distance Learning University by producing higher education products and by managing, developing and disseminating information on distance education. As a Distance and Open University which has been able to survive and has already existed until now, because of the managerial quality, especially in terms of managing Face to Face Tutorial. Face to face tutorials in Distance Learning Programs Unit in Semarang since registration period 2012 of odd semester, until now it has been managed better. The evident from the results of student assessment on the performance of most of the tutors are in the good category. The management of face-to-face tutorials conducted by The Person in charge of the area (PJW) certainly, each individual has different characteristics even though the final destination at the optimal quality tutorials. Purwanto (2010) suggested that the Educational leaders that require assertive behavior is the behavior that include an expression or declaration of interests, needs, opinions, thoughts, and feelings, the which are done wisely, fairly, and Effectively, so that our rights can be maintained with due regard to respect for equality and rights with other people. According with the type of leadership that is elected by PJW, it is expected from the implementation of good management is to create a good and satisfactory service for students as customers, that quality and student learning outcomes also increases. Through the development of this research has been carried out continuous improvement in all aspects aimed at improving the quality of the tutorial, so that the resulting managerial guide to the management pattern. The guide includes planning (recruitment tutors, tutorial planning, tutorial scheduling), implementation (tutors training, Tutorial

Implementing, tutorial monitoring,), **supervision** (tutorial monitoring) carried out by the academic staff and administrative staff. Monitoring officer always distribute a questionnaire to students in each study group to provide an assessment of the Unit of the Distance Learning Open University (UPBJJ-UT). services, and evaluating the performance of the tutor. In addition to a questionnaire completed by students as evidence that the tutor was able to carry out face-to-face with a good tutorial, the PJW still have to validate the completeness for the tutor as a form of control. Although it has been managed well, the reality has still found some tutors are considered less satisfactory in carrying out duties as a tutor. As a follow-up of these findings, the person in charge of the area is expected to improve and enhance the managerial art in managing face-to-face tutorials. Tutors found scored less has been given a letter of reprimand and included in the tutor training again in order to get better performance in the future.

### **The Formulation of the Problem**

- 1) How does management face-to-face tutorials that have been implemented in Distance Learning Programs Unit at the Open University associated with non-basic education program?
- 2) How do the results of face-to-face tutorials managerial evaluations that have been conducted in Distance Learning Programs Unit at the Open University associated with non-basic education program?
- 3) What is the follow up of the results of face-to-face tutorials managerial evaluations that have been conducted in Distance Learning Programs Unit at the Open University associated with non-basic education program?

### **The Objectives and The Benefit of The study**

#### **The purpose of the study**

- 1) Describe the management of face-to-face tutorials that have been implemented in Distance Learning Programs Unit at the Open University associated with non-basic education program.
- 2) Describe the results of face-to-face tutorials managerial evaluations that have been conducted in Distance Learning Programs Unit at the Open University associated with non-basic education program.
- 3) Describe the follow-up of the results of face-to-face tutorials managerial evaluations that have been conducted in Distance Learning Programs Unit at the Open University associated with non-basic education program.

#### **The benefits of the Study**

Knowing an overview of the management of face-to-face tutorials that have been implemented in Distance Learning Programs Unit at the Open University Semarang associated with non-basic education program.

Knowing the results of face-to-face tutorials managerial evaluations that have been conducted in Distance Learning Programs Unit at the Open University associated with non-basic education program.

Knowing the follow-up of the results of face-to-face tutorials managerial evaluations that have been conducted in Distance Learning Programs Unit at the Open University associated with non-basic education program.

After learning those three things, can be used as a guide or as an inspiration in performing a similar task, namely managing face-to-face tutorials are appropriate to the situation and condition of the institution elsewhere.

## **THE STUDY OF LITERATURE**

### **Basis Theory**

Distance Learning Programs Unit (UPBJJ) is a technical implementation unit in the area. Functions and duties UPBJJ-UT is as a student to academic and administrative activities of academic activities. Activity-UT UPBJJ daily as a distance learning service delivery. In performing these tasks UPBJJ-UT has the following principal functions:

1. Carrying out administrative activities and public relations and promotion coordinated by the Head of Administration Staff. Conducting academic administrative services that include registration and testing activities. These activities are not done simultaneously but highly related and continuous. It can therefore be coordinated by coordinators. (<http://www.ut.ac.id/upbjj-ut.html>)

In UPBJJ Semarang, there besides the head of unit, there is a The head of Administration Staff, there is also a coordinator of the registration and test. In serving students in the field of academic administration, in our unit in the form of responsible person in each region and city districts serve students assigned initial registration, registration and course planning group-based learning tutorials. Furthermore prepare tutor recruitment through selection and administration pursued in accordance with the subject areas that will be ampuhannya field.

2. Implementing learning support service activities and services which include the implementation of instructional materials and extra tutorials. Implementation of the tutorials in the future is expected to increase the volume with the new policy of tutorials with a special design, this activity is quite coordinated by a coordinator. In our unit, there is a coordinator who coordinates support services and service learning teaching materials to students. In this case the coordinator in charge of the area helped carry out managerial duties, meaning pouring berkeasinyanya capabilities when managing a learning aid in the form of face-to-face tutorials to be more effective and efficient result from time to time. Management performed such work should pay attention to the order, after making plans to schedule a tutorial followed by a tutorial that uses a special design. Each tutor has certainly used the tutor training organized by a dedicated team who have got stock of it. Tutorial with special design means that each tutor is obliged to draft a tutorial activities which include tutorials activity units (activity described in detail in 8 meetings with each meeting 120 minutes). At the third meeting (task 1), fifth meeting (task 2), and seventh meeting (task 3), the tutor should provide a tutorial as a form of assessment tasks in the tutorial for 60 minutes, and discussed the provision of feedback on the next 60 minutes. Students are entitled to the value of the tutorial if actively present at the tutorial at least 5 times less than that of students not entitled to receive the value. Values obtained by using the tutorial predetermined formula which is 7 times that of the average value of task 1, 2, and 3 plus 3 times the value of participation divided 10 Value tutorials made by tutors, contribute to the value of the course by 50% if the value of the test receive a minimum of 30 semester (new policy since 2013.2). Prior to that time regardless of the value of the results of final exams, students received help 50% of the value of the tutorial task.

3. Developing, maintaining, and carrying out cooperation with various agencies. This function is authorized UPBJJ Head-UT that will be ineffective if the coordinator or delegated to other staff.

In our unit, the person in charge of the area in recruiting tutors from various agencies outside the Open University in the selection of tutors should pay attention to the field of study based on the expertise possessed diploma tutor. Prospective tutors are required to participate in tutor training held each semester by special teams as a form of coaching to develop academic skills in performing the task tutorial.

Face to face tutorials Nonpendas program serves to help students solve problems regarding programs of study pursued. Especially when students have difficulty in understanding modules and practice when carrying out tasks such as teaching practice or practice as librarians, as well as the problems facing the development of education. Face to face tutorials supplied in the form of half of a package system based learning groups, as well as a vehicle to provide learning facilities to students through the ministry of education developed by the distance learning system and open; distribution of knowledge are up to date. Face to face tutorials are also offered to provide learning facilities for students, especially for subjects that are not required as face to face tutorial called tutorial at the request of the student (ATPEM).

Managerial leadership in education plays a very important role. Therefore, through the utilization management functions, leadership is expected to be run in accordance with the agreed mechanism to achieve educational goals. Management is a core part of the leadership. Is the art of managing managerial tutorial tutorial tutorial in this case non-face basic education programs. As an art to influence and manage other people, whether to use a strong leadership or authority is weak, all will provide a direct consequence of the success or failure as a manager of an institution. So also in educational institutions such as the Open University in managing face-to-face tutorials non basic education program to fulfill its mission.

Evaluation of managerial tutorial is the ability to be creative in managing the tutorials to be more effective and efficient as expected mission of the institution. The ability to be creative in managing the expected errors include the ability to examine and further deficiencies followed up with a variety of improvements so as to achieve better results than ever before. In line with the opinion of Sallis (2011: 236) that the evaluation process should focus on the customer and explore two issues: first, the extent to which the institution is able to meet the individual needs of its customers, both internal and external; and second, the extent to which the institution is able to achieve its mission and strategic goals. Evaluation requires three levels, namely immediate, short term and long term. As a leader in the field of education according to Purwanto (2010), requiring assertive behavior is behavior that include the expression or the courage to make decisions, express needs, expression, revealed the results of thoughts, and feelings, which is done wisely, fairly, and effectively, so that the right -haknya can be maintained with due regard to the circumstances and considering the rights of others. Through assertive behavior, it is expected the PJW can also manage all aspects of the run, and it will have an impact on the sustainable development of the success of its management tutorials. Assertive behavior is developed as an attempt to create a model of leadership or examples of leadership through self-discipline and cooperation based on individual creativity.

According Kid Sadgrove (in Ujang 2011) Total Quality Management (TQM) can be defined in three words they have are: Total (overall), Quality (quality, degree/level of excellence of goods or services), Management (action, art, way menghendel, control, direction). From its three words, the definition of TQM is a management system oriented customer satisfaction (customer satisfaction) with activities pursued so right (right first time), through continuous improvement (continuous improvement) and motivate employees. In TQM, the institution can be interpreted as a Services Unit, the learning services. as a services unit, which served the institution (customer education institutions) are: 1). Internal Customers: faculty, administrative staff and tutors, 2) External customers comprising: a primary customer (student), secondary customers (family, community government), customers tertiary (user / recipient graduates from college and the business world). As internal customers, faculty and administrative staff who are in charge of managing the tutorial units, while tutors from other agencies have been given training and briefing to be able to carry out the tutorial.

According to Maxwell (in Ujang 2011) that includes access to quality dimensions that relate to the ease of getting acquired education services in place and easily accessible in a timely manner and comfortable. Compatibility with the level of customer demand, which would match the profile of education levels, population and groups who need it. Effectiveness is associated with the ability of service providers, education (teaching staff) to serve or create the desired results. Equity related to the distribution of resources is equitable services institutions in a system that is supported in general. Socially acceptable related to environmental conditions, communication and freedom, or privacy. And economic efficiency refers to the notion that the best service for the cost right. Management tutorial by PJW has been working closely with the regional board district/city where the study group was formed. Cooperation with local officials to make access, suitability, equity, and efficiency have been adequately met and controlled through the service questionnaire. The effectiveness of the tutorial has been trying invented readiness through training and equipping tutors by a special team and be controlled by monitoring the performance of tutors and tutor assessment questionnaire.

In MMT (Total Quality Management) by Sonny (2011), that the success of an institution is measured from the level of customer satisfaction, both internal and external. School is successful if it is able to provide the same service or exceeding customer expectations. Seen types of customers, then the school is successful if: Students are satisfied with the service schools, among others, are satisfied with the lessons learned, satisfied with treatment by teachers and leaders, satisfied with the facilities provided by the school. In short, students enjoy the school situation. Parents of students satisfied with the service or services to their parents, for example, satisfied that receives periodic reports on the progress of students and school programs. Parties to the user / recipient graduates (universities, industry, community) are satisfied for accepting graduates with quality as expected. Teachers and school employees are satisfied with the services, such as division of labor, the relationship teachers to teachers / employees / management, salary / honorarium, and so on. In the TTM managerial evaluation process difokusksn on customers, which meet the needs of internal and external customers and be able to achieve its mission and strategic goals set. Is successful is measured from the level of customer satisfaction, service satisfaction both administrative and academic service satisfaction (tutorial activities).

## Frameworks

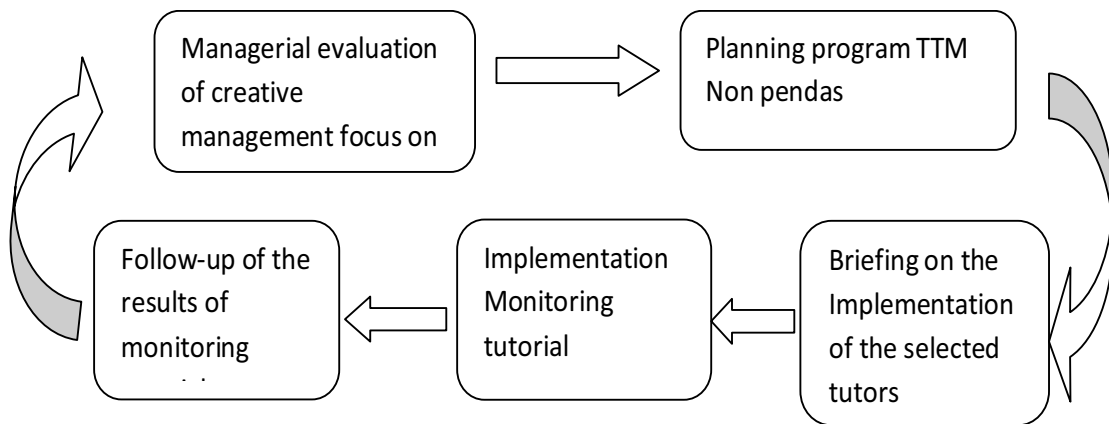


Figure 1. The process of evaluating managerial TTM

Managerial evaluation is an assessment of the ability to be creative in managing the TTM. Managerial evaluation is needed to determine the extent of success of the tutorial is managed. The evaluation process is carried out almost every day with a focus on meeting customer needs (tutors and students) as well as the extent to which the ability to achieve the mission and goals set. Each PJW expected to have the ability to examine the advantages and disadvantages that have been performed on each of the stages: planning; implementation, monitoring, and follow-up of the results of the evaluation. The results of the evaluation conducted managerial guidelines should serve as a guide for further management.

## METHODS

Development of research procedures performed, can be described as follows,

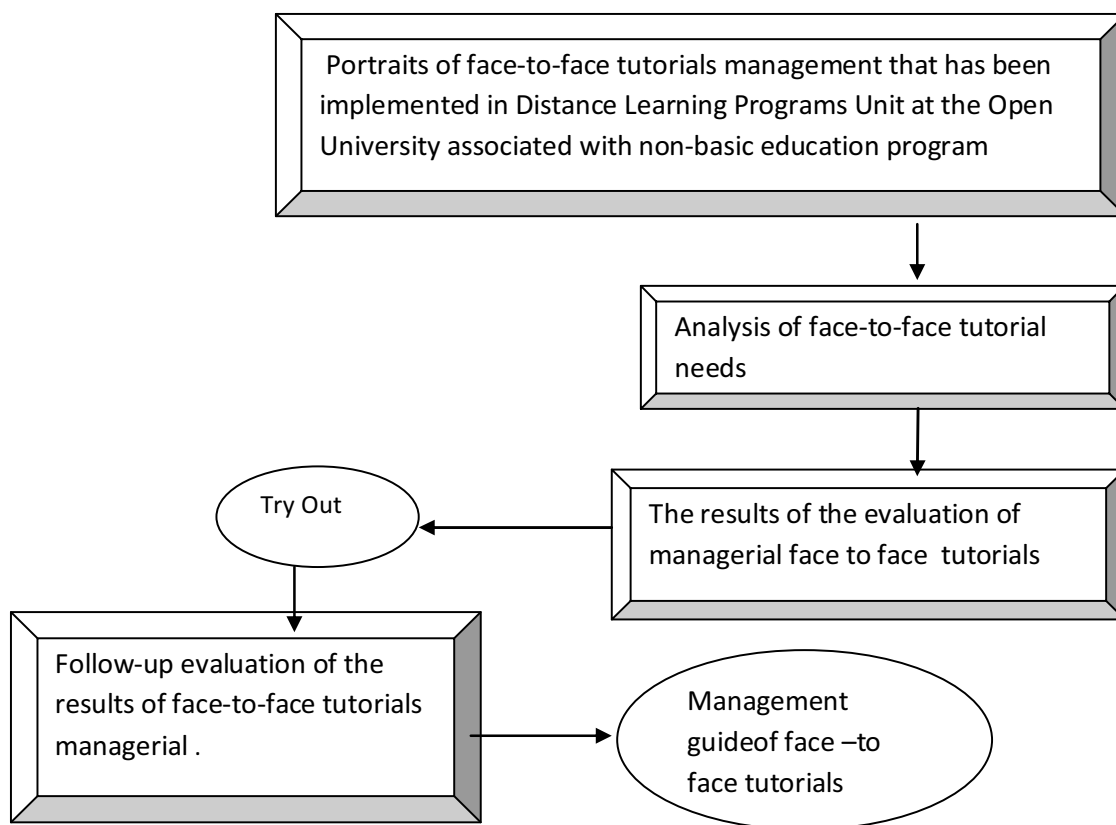


Figure 2. Procedure Development Research Adoption of measures using Method Research and Development (Sugiyono, 2010: 409)

**The stage of the research Development was conducted by :**

1. Implementing managerial of face to face tutorials that in Distance Learning Programs Unit at the Open University related with non-basic education program. The Managerial team are Lecturers and administrative staff of open university which is solely responsible for the planning, implementing, monitoring, and evaluation.
2. The analysis of face to face tutorial needs , including the need for qualified tutors, students registered. As managerial actors need to plan for the accuracy of the installation of the tutor on the course that will diampuh. Furthermore, it takes preparation schedule face-to-face tutorials, schedule accuracy is validated first by the coordinator in charge. Tutors are selected invited tutors attended the briefing in order to understand the tasks to be completed. Tutors are selected must also have completed the tutor training.
- 3 The results of the evaluation of managerial tutorial face to face, expected to be the creation of each person in charge of the area. Assertive leadership approach is one example that can be used as inspiration in applying leadership used.
4. Try out , intended to obtain information effectively and whether the guidelines had been applied in managing face-to-face tutorials. Furthermore, if the journey is felt that the guidelines are less effective, it is necessary managerial skills for better adapted to the situation and the areas of responsibility.
5. The follow-up of the results of the evaluation of managerial face to face tutorials. Evaluation can not be separated with the monitoring or supervision. The data is



processed and the results of the monitoring be concluded then followed up in accordance with the problems that arise. Various errors should be recorded to be used as the information at the time held a briefing tutors in the future.

6. The management guide tutorial face to face, as a means of control for the PJW when receiving files fixtures ranging from tutor: Tutor Work Instructions; RAT and SAT; BA; Task Tutorial; Guidelines for scoring; Attendance; Meeting Notes Tutorial; Recapitulation Value Tutorial; Task Receipt of Students; Examples of Duties Results; Evaluation results Tutor. If there is still incomplete from 11 different bills that have to be met, then the tutor must immediately complete the next day or as soon as possible. If the bill had been met then tutors are welcome to sign the honor to be received and subsequently transferred to a savings account fee each tutor.

## **RESULTS AND DISCUSSION**

### **Results**

Through the development of research have obtained the data from the evaluation of the pattern of managerial management includes planning TTM; implementation; monitoring; follow-up. The advantages of planning that has been done tutor data collection, so that when recruiting tutors PJW will not have trouble. Furthermore tutorial planning, careful not to get a tutor mounted in two different counties. When planning was considered good tutorial then followed by the drafting tutorial schedule. Once the schedule is validated by the coordinator and approved by the leadership, the tutors are invited to attend the debriefing tutorials. Briefing material sourced from the provisions that must be done and sourced from the mistakes that have been done by the tutor (the tutor so that mistakes are not repeated).

The problems that have occurred, a tutor was unhappy with the course given by PJW unbeknownst to tutor two people have to exchange two values consequently subject courses are not ter-entry. At execution time, this incident be a warning to both the tutor and important notes at the time, equipped tutor, it is definitely an impact on the preparation of nominative tutor. Monitoring tutorials conducted by academic staff and administrative staff. Tutors are expected to carry out the tutorial on schedule next necessary supervision or monitoring by giving questionnaires to the students to provide evaluation of UPBJJ services, and evaluation of the performance of the tutor. Although it has been managed with a detailed, carefully and well, the reality has still found some tutors are considered less satisfactory in carrying out duties as a tutor. As a follow-up of these findings, the tutor who scored less has been given a letter of reprimand and included in the tutor training again in order to get better performance in the future .

### **Discussion**

Prior-entry value in the existing system of the tutors at the designated time should have been handed over to the students the value of each PJW along with other support files. Having stated no problem, file the value is validated by the competent coordinator. Although PJW have tried checking the completeness of the file, there mistakes made by the tutor, for example, the course code writing error, error identification numbers of students, the error value format, there is a surrender value exceeds the specified time limit, and this spoiler entry value time is also limited. As PJW must be able to develop creations for the tutor anticipate that errors are not repeated. Creations can be

submitted to a fellow PJW and creativity embodied in the presentation of the material at the time of provisioning tutor, with a message that the error is not repeated. PJW is not noted various errors committed tutors, have an impact on the number of students who do not value tar-entry. Visible region where the most value is not entered when the ICT section of the report before the entry deadline.

In addition to looking at the tutor's performance in terms of making recap student grades, attendance, tutorial records, RAT and SAT, the best example of the task and the worst student, tutor assessed by students through questionnaires in 14 aspects which include:

- 1.Describes the purpose and tutorials with clear rules.
- 2.Outlining the benefits and relevance of the course material well.
- 3.Mastering the ditutorialkan course materials.
- 4.Provide enrichment material with examples are easy to understand.
- 5.Outlining a systematic and interesting material.
- 6.Using language that is easily understood.
- 7.Be polite in implementing the tutorial.
- 8.Motivating students to participate actively.
- 9.Managing the interesting discussion so that all participants participate actively.
- 10.Giving equal opportunity to the students to answer questions in the tutorial.
- 11..Provide tutorial duties at the meeting to 3,5,7.
- 12.Giving feedback on student assignment results in detail so that students know the advantages and disadvantages.
- 13.Invite students to summarize the essence of the material presented.
- 14.Begin and end meetings on time tutorial.

The aspect may be a reflection of the performance of tutors in the student view. Aspects average value  $\leq 3.30$  (in scale 1-4) are at No. 2, 5, 9, 12. aspects are considered in addition to the four numbers  $> 3.30$  means that students feel satisfaction with the performance of the tutor.

At no.2, indicating that the student requires a description of the tutor on the benefits and relevance of the course material well, so that the material is more meaningful in life.

At no.5, illustrates that the student requires a systematic description and interesting material. That is envisaged that the tutor not understand the age and interests of students while receiving an explanation. Tutors should make the material look more attractive not just lecture.

In no.9, indicating that most of the tutors are less able to manage with interesting discussions that can bring students to participate actively.

At no.12, indicating that students need feedback on the results of the task which he has done so that students know the advantages and disadvantages.

In addition, during each 2014.1 tutor assessed by students, from 52 tutors, there are 7 = 13.5% tutors who score  $< 3$  (less than 3 = poor) and 45 = 86.5% tutors who earn good grades. This information is important for the PJW for actionable use in the next semester. Tutor a poor status and given a letter of reprimand be included again in the tutor training, if the value is less well happen again should not be used in the next period.

## **Conclusion**

Managing learning aid for students, especially in non-education programs in addition to meeting basic needs and satisfaction of customers (students and tutors), also requires the ability to be creative from PJW to achieve success. Managerial evaluation is necessary to examine the shortcomings of what has been done to be fixed in the next period. Evaluation of managerial ability should come and grow from self-awareness of the PJW to reduce errors that have occurred in various aspects, so as to achieve success. Target success is a success by minimizing errors.

## **Suggestion**

Target success means a good result without error. Any work to achieve zero error is the maximum target and very difficult to achieve. It was just easy to obtain if the target or goal has been understood in depth by each employee who is completely loyal to an institution where she works, so that the necessary reward for employees who are able to achieve these targets. Should be prepared as a certificate of congratulations and thanks to the tutors who got good grades in three consecutive semesters as a form of reward and motivation for the tutors.

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# Teaching accounting in the distance learning mode and on-campus mode: A comparative study at Wawasan Open University

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## Abstract

Wawasan Open University was established in 2006 as the third open distance learning institution in Malaysia. Wawasan Open University is the only open distance learning institution in Malaysia to offer Advanced Diploma and Honours Degree level studies in accounting in Malaysia. In September 2013, Wawasan Open University opened her door to full time on campus learners with the initial offering of Honours Degrees in Accounting and Management. This study looks at the differences and challenges of presenting similar accounting degrees in both modes. Embarking on a new form of course presentation is a normal form of institution advancement; however WOU is different from the norm as most institutions expended from conventional on campus learning but WOU did the reverse. At the time of writing, WOU is the only institution in Malaysia that is licensed to present the accounting degree program in both the distance learning and on campus modes.

The researcher has made a comparative study of the accounting program through the perusal of the various documents pertaining to the creation of the syllabus and approaches to teaching that was submitted to the Malaysian Qualifying Agency and the various professional accounting bodies for purposes of accreditation. The researcher next looked at the presentation of the accounting courses at the university by observing how classes are conducted and a perusal of how examinations and assignments are presented using both modes.

Using “Dick and Carey’s (1996) instructional design model” and “Merrill’s (2007, 2009) five prescriptive instructional principles”, the researcher looks at how different both modes of teaching. By understanding the peculiarities of both mode of teaching, the study would be helpful to accounting instructors to design and present accounting courses in the future in the distance learning and on campus students.

**Keywords:** Institutional advancement, Distance learning, On campus learning, Comparative study, Pedagogy.

## Introduction

Wawasan Open University (WOU) was established in 2006 as the third open distance learning institution in Malaysia. Unlike the traditional face-to-face universities in Malaysia which focuses of education for the school leaver, WOU focuses their efforts on working adults to help them pursue tertiary education without much disruption to their professional and personal commitments. Accountancy is one of the disciplines offered by WOU at their business school. To date Wawasan Open University is the only open distance learning institution in Malaysia to offer Advanced Diploma and Honours Degree level studies in accounting in Malaysia. In 2010, the accounting program was accredited by the Malaysian Qualification Agency (MQA) - a governmental entity which is responsible for quality assurance of higher education in Malaysia.

In September 2013, WOU decided to widen their offering to full time on campus learners with the initial offering of Honours Degrees in Accounting and Management. This meant WOU will also provide educational opportunities to school leavers apart from working adults.

This study looks at the differences and challenges of presenting similar accounting degrees in both modes. Embarking on a new form of course presentation is a normal institutional advancement; however WOU is different from the norm as most institutions expended from conventional on campus learning but WOU did the reverse. At the time of writing, WOU is the only institution in Malaysia that is licensed to present the accounting degree program in both the distance learning and on campus modes.

## Literature review

Merrill et. al. (1996) defined instructional design as the practice of creating "instructional experiences which make the acquisition of knowledge and skill more efficient, effective, and appealing." The process consists broadly of determining the current state and needs of the learner, defining the end goal of instruction, and creating some "intervention" to assist in the transition.

Instructional theory, according to Reigeluth (1999) is "theory that offers explicit guidance on how to better help people learn and develop."

Dick and Carey (1996) outlined the steps in an instructional design model as follows:

1. Determine instructional goal
2. Analyze the instructional goal
3. Analyze learners and contexts
4. Write performance objectives
5. Develop assessment instruments
6. Develop instructional strategy
7. Develop and select instructional materials
8. Design and conduct formative evaluation
9. Revise instruction
10. Summative evaluation

Merrill (2007,2009) proposed five prescriptive instructional principles that will improve the quality of instruction across all situations (Merrill, 2007, 2009). Those principles include task-centeredness, activation, demonstration, application, and integration. Instruction must be task-centred.

Demonstration is the next important principle whereby instruction should provide a demonstration of the skill consistent with the type of component skill: kinds-of, how-to, and what-happens, provide guidance that relates the demonstration to generalities, engage learners in peer-discussion and peer-demonstration and allow learners to observe the demonstration that are appropriate to the content.

Application would mean that the instructor should have the learner apply learning consistent with the type of component skill: kinds-of, how-to, and what-happens, provide intrinsic or corrective feedback, provide coaching, which should be gradually withdrawn to enhance application and engage learners in peer-collaboration.

Merrill proposed that his activation principle would require the instructor to activate relevant cognitive structures in learners by having them recall, describe, or demonstrate relevant prior knowledge or experience, have learners share previous experience with each other and have learners recall or acquire a structure for organizing new knowledge.

His integration principle requires instructors to integrate new knowledge into learners' cognitive structures by having them reflect on, discuss, or defend new knowledge or skills, engage learners in peer-critique, learners create, invent, or explore personal ways to use their new knowledge or skill and instructors should have learners publicly demonstrate their new knowledge or skill.

## Methodology

The researcher has made a comparative study of the accounting program through the perusal of the various documents pertaining to the creation of the syllabus and approaches to teaching that was submitted to the MQA and the various professional accounting bodies for purposes of accreditation. The researcher next looked at the presentation of the accounting courses at the university by observing how classes are conducted and a perusal of how examinations and assignments are presented through both modes.

Using the instructional design model proposed by Dick and Carey (1996) the researcher compared two courses which is offered by WOU in the accounting programme on both online distance learning (ODL) and on campus learning (OCL) modes and observe the similarities and differences. The researcher based his research on the syllabi as submitted to the MQA for preliminary accreditation on both modes of study as compared to the course outline given to the students at a semester's start.

Next using Merrill's (2007,2009) five prescriptive instructional principles, the researcher retraced the same syllabi using the prescribed steps. The researchers paid close attention to the following categories when perusing the MQA submissions.

- Mode of Delivery
- Objective

- Learning Outcome (LO)
- Reading List
- Method of Assessment

Two courses are chosen for comparison i.e. Business Accounting II (BA2) and Cost and Management Accounting (CMA). BA2 is chosen as this course is a Basic Major Courses which must be taken by all business undergraduate students in WOU. This course emphasises high level book-keeping skills together with a basic level company accounting, the interpretation of accounts and cost accounting. The course was design for general management students.

CMA is specialised accounting course which was developed based on guidelines from the Chartered Institute of Management Accountants (CIMA) from the United Kingdom. All accounting undergraduate students are required to pass this course.

As mentioned above, this research will comprise of two sections. The first will be a comparison of the courses using the instructional design model proposed by Dick and Carey (1996). The second would be the comparison using Merrill's (2007,2009) five prescriptive instructional principles.

### Findings using Dick and Carey (1996)'s model

The analysis between the presentations for the ODL and OCL resulted in the following

- Determine instructional goal  
There is no difference of the instructional goals of both ODL and OCL forms of presentation of BA2 and CMA.  
*This BA2 course enhances the students "knowledge and skills in preparation for subsequent higher level accounting courses" while CMA "prepares students for subsequent higher level course in cost and management accounting".*
- Analyze the instructional goal  
Both ODL and OCL BA2 courses introduce *"the students to the theory and application of various areas in accounting such as fixed assets accounting, partnership accounting, company accounting and interpretation of financial statements.*  
  
*Both ODL and OCL CMA Courses "help students to make better decisions especially in planning and control, with an emphasis on managing costs. Students can relate what they learn in this course to the real business world and their workplace."* Although the ODL courses target working adults and the OCL courses target school leavers, it is the main aim that all students can apply the knowledge learnt at work.
- Analyze learners and contexts  
The ODL course aims to impart accounting knowledge to the students in the shortest possible time of 10 hours while the OCL 47 hours. In the ODL mode students need to dedicate 190 hours of independent learning while the OCL mode only 73 hours.

- Write performance objectives  
The performance objectives are the LO's. Both LOs are exactly the same.
- Develop assessment instruments  
The assessment instruments differ between both modes. In the ODL mode, the students will have to answer 2 tutor marked assignments which is common throughout the whole of Malaysia while in the OCL mode the lecturer himself will determine the mode and frequency of assessment.

The presentation of the OCL BA2 differs from lecturer to lecturer. In the September 2013 semester, the lecturer will require the student to pass up 2 assignments and sit for 1 mid-term. In May 2014, a different lecturer took the class required the student to pass up 1 assignment and sit for 1 mid-term. The lecturer for CMA required the students to present and pass up one discussion paper and sit for 1 mid-term. The marks from the discussion paper will come from a composite of marks by the lecturer and fellow students.

- Develop instructional strategy  
The ODL requires students to be independent. The course materials are lectures in narrative form – referring to a textbook when necessary. If the students need to clarify any queries, then they will have to post their queries on the Learning Management System (LMS).

The lecturer on the OCL mode will use a textbook and the students will work from there. The lecturer gives short revision notes in PowerPoint. Unlike the ODL mode, the LMS acts as a depository of notes rather than a discussions platform.

- Develop and select instructional materials  
Course material licensed and adapted from Open University Hong Kong is used in the ODL mode. The materials are in narrative form (scripted like a talking lecturer) with references to Wild, J J, et. Al. (2013), *Fundamental Accounting Principles*, 20th edition, McGraw-Hill Education (Asia) for BA2 and Horngren, C T, et. al, (2011) *Cost Accounting: A Managerial Emphasis*, 14th edition for CMA.

Reading of the textbook is advisable but not compulsory.

In OCL mode, the lecturer used Wood, F and Sangster, A (2012) *Frank Wood's Business Accounting 2*, 12th edition, and Horngren, C's book religiously. The lecturer will demonstrate the questions from the textbook.

- Design and conduct formative evaluation  
As mentioned earlier, the students of the ODL will have to complete 2 assignments. The students are encouraged to complete the assignments individually; however there is a tendency for students to collaborate. In the OCL, mid-term requires the student to demonstrate their skills under the pressure of limited time, something which cannot be practiced in the ODL.



- **Revise instruction**  
A period of 9 months is required for a revision of the ODL course as the materials are presented to the students in the Portable Document Format (PDF). This process requires review by an appointed course team. As the OCL does not require any formal review process, the lecturer can easily revise his material a day before his class. For example, Malaysian Financial Reporting Standards (MFRS) 101 was introduced in the ODL course 9 months after it was introduced by the Malaysian Accounting Standards Board. MFRS was introduced with immediate effect into the OCL BA2 course. Any changes to the course material that needs to be addressed immediate in the ODL will be posted in the LMS. Unfortunately students have complained about the disjointedness when this measure is performed.
- **Summative evaluation**  
It is a requirement from MQA and professional accounting bodies that any recognised accounting course must have written summative evaluation. A 3 hour examination is conducted for students of both modes separately.

### Findings using Merrill's (2007,2009) five prescriptive instructional principles model

Merrill's (2007,2009) five prescriptive instructional principles that will improve the quality of instruction across all situations (Merrill, 2007, 2009) will now be used to highlight key features from both the ODL and OCL courses of BA2 and CMA.

Task-centeredness is key to all accounting courses. In the development of the four aforesaid courses, the MQA has required task-centeredness as a key requirement. The aim of the Bachelor of Business (Hons) in Accounting is to provide students with the basic theory and practical knowledge in various facets of business with an emphasis in accounting. The degree prepares students to perform job functions as accounting, tax and audit practitioners in business organisations. MQA will not approve the program if elements of task centeredness are not present.

The level of "demonstration" differs between the ODL and OCL modes. In traditional Distance Learning, face-to-face "demonstration" is NOT important however MQA rules require some element of face-to-face "demonstration" to be there. WOU provides tutorials of 2 hours session for monthly for 5 months in the ODL mode. In the OCL mode of course, students are required to attend 4 hours of lectures and tutorials a week. WOU does not encourage "tutors" to "lecture" during tutorials thus the amount of demonstrations made by the tutor is limited to explaining parts of the course material which is difficult to the student. In the OCL mode, as time is aplenty, lecturers can demonstrate questions chosen by him and by the student.

"Application" is another key skill required in any accounting course. WOU requires every tutor to provide corrective feedback to every ODL assignment marked by them individually in writing. In the OCL mode, feedback is usually done verbally either overall as a class or for weaker students; the student will have to meet with his lecturer to discuss about his shortfalls.

Any vocational program would require “activation principle” in its design. The MQA requires a summative examination for both modes at the end of every course. In 3 hours, students are required to write up accounts based on scenario chose for the examination. However in the ODL mode students will show their “application” skills outside the watchful eyes of an instructor through their assignments.

Unlike business courses such as Business Ethics which is standalone, the “integration principle” is well and alive in accounting courses for both ODL and OCL modes. It is impossible NOT to test knowledge from Business Accounting I in BA2. Elements from supporting courses like Business Law and Company Law will be “tested” partly in BA2. Students who “learn for a semester” will be greatly disappointed when taking any accounting course.

## Conclusion

Reflecting on the analysis performed first through Dick and Carey (1996)’s model and Merrill’s (2007,2009) five prescriptive instructional principles model we can conclude the following:

- The instructional goal that WOU Accounting graduates of both modes must be able to apply their knowledge at the workplace

It maybe an advantage for students who are currently working in the accounting sector in accounting courses as compared to OCL students who might need to “imagine” their way when trying solving accounting scenarios. MQA and the professional bodies place usefulness in the workplace as a key element. The challenge for the OCL educator is to encourage the students to “imagine” what it is like in the workplace and “encourage” application of what is taught in class.

The ODL educator acts as a facilitator to encourage students of various backgrounds to exchange their best practices at work through the forums or through exchanges (although limited) in class.

- Develop assessment instruments

In the ODL mode students can collaborate on a certain assignment and get good marks on them. Students can collaborate on their assignments in the OCL mode but mid term tests adds some level of assurance as collaboration is not possible.

To ensure that collaboration is not rampant in any ODL course, test banks which can generate random question to students must be used. Curtin University uses the Perdisco Algorithmic Homework system as part of their assessment for their ODL courses.

- Instructional materials

Developers of instructional materials between the two modes must realise that the orientation for both modes are very different. The ODL material must be compact enough to fit in all the course outcomes i.e. able to provide the busy student the shortest material without sacrificing the quality of the material. The OCL instructor should make sure that his class can encourage his students to imagine work-based scenarios. ‘Demonstration’ is a luxury for the ODL student.

- Revised materials  
Revision of materials is not very flexible on the ODL mode if the course materials are distributed in the PDF. Lead time of 9 month is needed unlike in the OCL mode whereby the lecturer will just inform the students about the changes in class. ODL publishers must think use easier to amend formats in order to keep up with any changes.

## End thoughts

There would always be differences between the presentation of any course to the student in the ODL and OCL modes. Based on the WOU experience, educators must be sharp enough and flexible enough when teaching in both modes. The ODL students are worldly in nature while the OCL students need leadership from us. In my experience teaching in both modes is very satisfying.

*Dedicated to Janet, Kimmie and Lady Edith.*

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# **Innovative evaluation methodology at SCDL**

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Symbiosis Center For Distance Learning (SCDL) is a single mode ODL institute in India offering distance learning programs in various disciplines such as Management, Law, IT, Education, Humanities and Social Sciences. SCDL is one of the most sought after institutes having more than 200,000 students from all corners of India and over 25 different countries.

SCDL has always focused on excellence in education and innovation in student support services. With this objective, SCDL introduced an innovative methodology of conducting assessments and examinations. The Evaluation Methodology for most of the programs of SCDL comprises two components – assignments and examination. SCDL used to offer traditional –pen-paper based assignments and examinations. However due to large student base there were several problems the institute faced with the traditional system of evaluation such as quality of evaluation, timely evaluation, delays in declaration of results, high administrative costs and student grievances. To address these issues the institute decided to implement computerized testing software for both assessments and examinations. The computerized system has provided students the ability to appear for ‘On-Demand’ examinations through-out the year on a date, time and location of their choice providing ultimate flexibility and convenience. The software system is used both for assessments and examinations. The paper describes the key features of this computerized testing software, the advantages, challenges and the outcome, benefits.

## **Computerized Testing System**

SCDL spent two years in developing computerized testing software. This integrated software system comprises of following sub systems:

1. An exam fee payment system
2. An exam booking system
3. A question bank management system
4. An administration system
5. An exam engine
6. A reporting tool

The key features of this system are:

1. Allows students to pay exam fees online using a payment gateway and get a receipt of payment

2. Allows students to book an exam as per their choice of time, location (exam center) and date
3. Allows students to generate a hall ticket which carries their photograph and other exam details
4. Allows students to attempt a computerized examination where the exam paper is a set of randomly generated questions.
5. Allows students to attempt both MCQ based as well as subjective (descriptive) questions.
6. Allows the administrator to manage various aspects of the system and generate desired reports.
7. Allows computerized evaluation of subjective questions.
8. Allows consolidation of the marks obtained.

**Advantages:**

1. Ease of operation (for students and administration) as regards all aspects of exam conduct
2. Wide variety of questions with different difficulty levels
3. Randomly generated question paper which is different for different students
4. Reduction in mal practices which used to take place in the paper-pen exam model
5. Ease of introducing new questions or retiring old ones
6. Students located in all corners of India and abroad are able to attempt the computerized exam
7. Conducting thousands of examinations without increasing costs
8. Low administrative overheads
9. Transparency in all exam operations and results
10. Faster and accurate result consolidation and declaration of results
11. Lower absenteeism for exams & higher attempt ratio (booked vis a vis attempted)
12. No delays in any exam operations
13. Reduction in evaluation expenses
14. Faster completion of exams and program due to on-demand exam facility
15. Reduction in student grievances

**Challenges:**

1. Developing good quality questions based on recall, application and comprehension levels of learning suitable for the computerized system
2. Developing question bank of large number of questions which is required for the exam engine while generating a question paper
3. Training faculty for developing questions for the computerized testing system

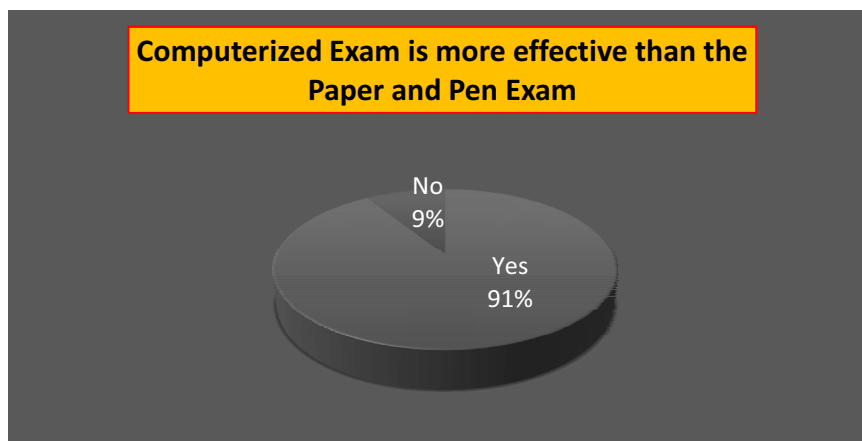
### Benefits:

1. The institute has been able to stream line all operations related to conduct of examination
2. The institute has been able to improve efficiency of various operations
3. The institute has been able to create complete transparency in all areas
4. The institute has been able to scale its ability to conduct very large number of exams
5. The institute has been able to leverage ICT to increase the spread of exam centers geographically
6. Efficient use of technology in all aspects of exam conduct
7. The institute has been able to improve overall student satisfaction

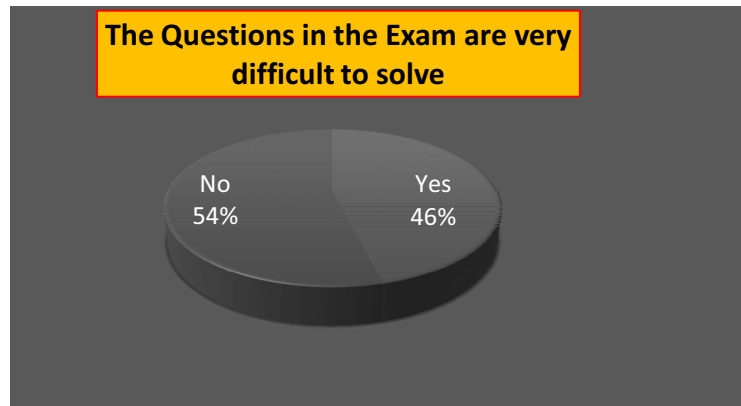
### Outcome:

We conducted an opinion-oriented survey of SCDL students to gather their opinion about various aspects of examination conduct. The total number of students interviewed was 5457. These students are pursuing various programs at SCDL. The following are some key outcomes:

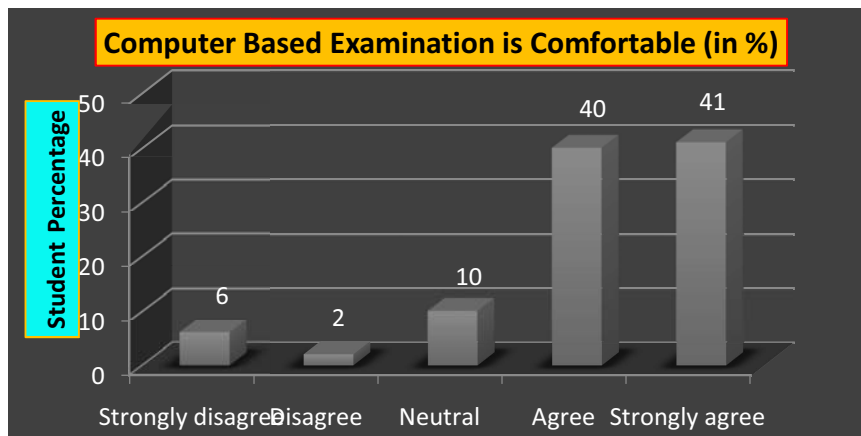
1. Computerized Exam is more effective than a pen-paper exam ?
  - a. 91% students answered Yes. Out of this most of the students agree that the computerized exam is easy to attempt ie. Typing is easier than writing an answer and MCQ based questions test the students' ability to apply whatever is learnt in theory as compared to writing elaborate answers.



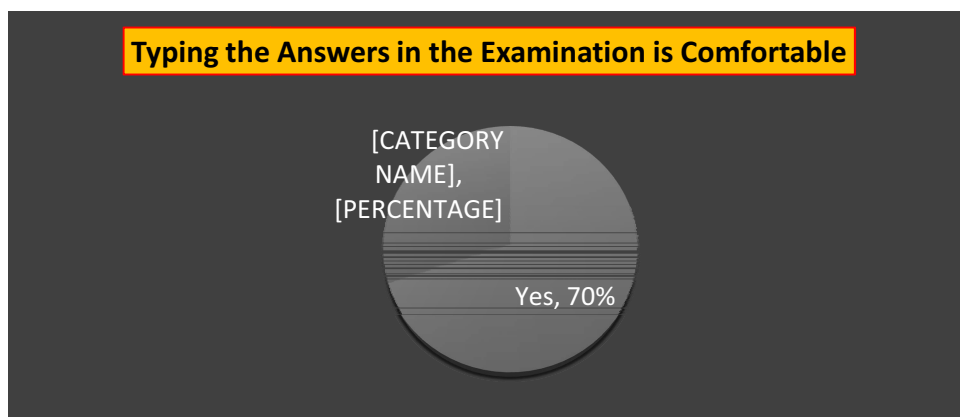
2. The questions in the exams are very difficult to solve?
  - a. Only 46% of the students feel that questions are difficult to solve; but, 54% of the students do not feel it is difficult to solve the questions.



3. Is computer based examination is comfortable?

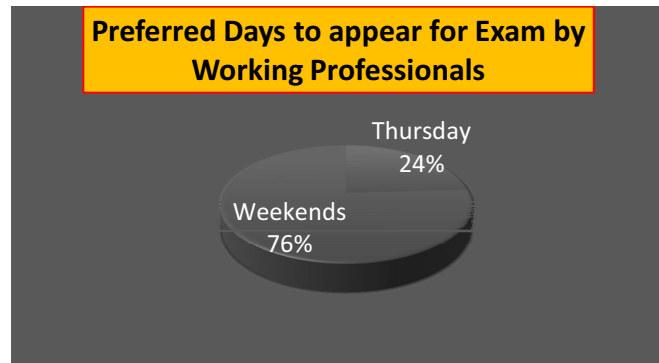


4. Is typing the answers in the examination is comfortable?

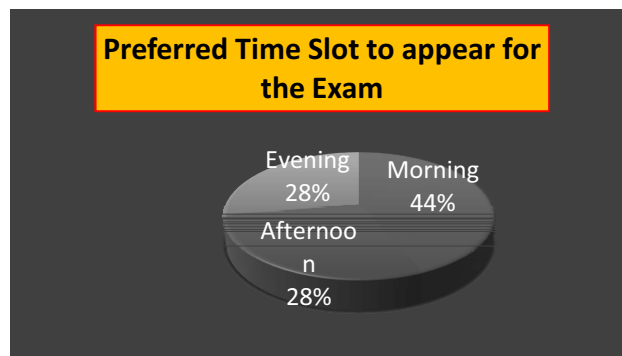




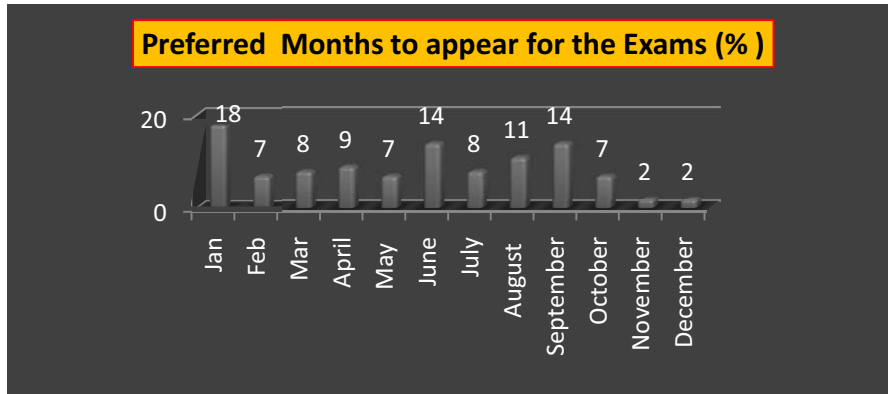
5. Preferred days to appear for exam by Working Professionals?
- 42% of the working professional feel Thursday is convenient day to appear for the exams as it is an Industrial holiday in most of the areas. Whereas Working Professionals from other category like IT sector feel that weekends i.e. Saturday-Sunday are more convenient to appear for exams. Thus, examinations round the year on all days of the week, have become very popular amongst the students of SCDL.



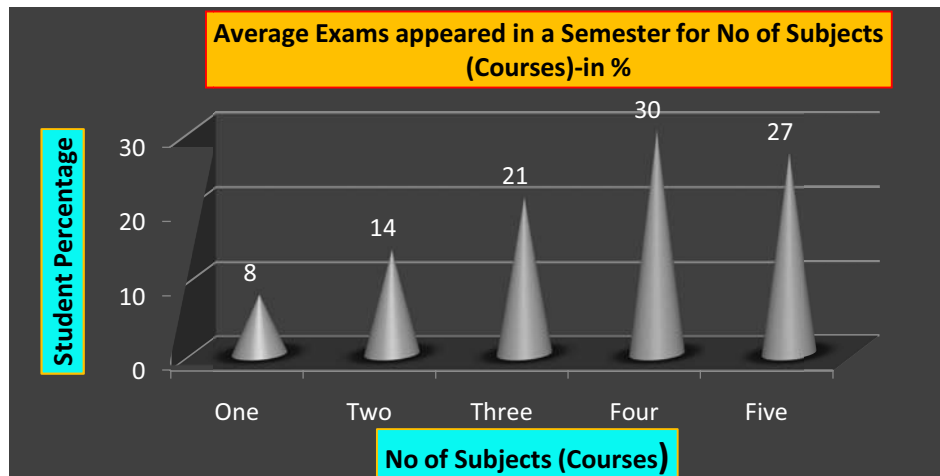
6. Preferred Time slot to appear for the Exam?
- 44% students prefer to appear for the exams in the morning hours whereas 28% prefer to afternoon hours and 28% prefer evening hours. Thus, SCDL allows the students to appear for the exams as per their convenience.



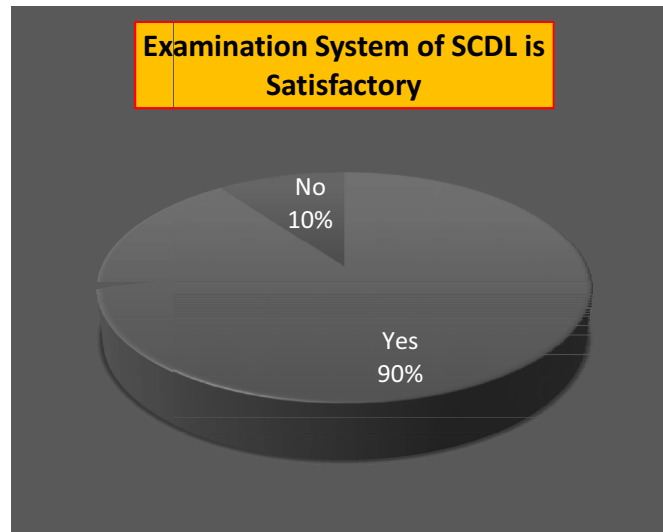
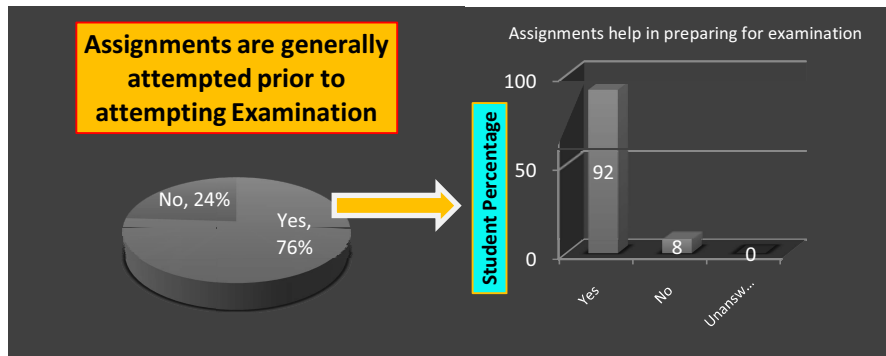
7. Preferred months to appear for the exams (%)?
  - a. Students prefer to appear for the exams throughout the year as per their convenience. The concept of On-Demand & exams 24x7 have become very popular amongst the students of SCDL.



8. What is the average exams appeared in a semester for number of subject (courses) in %?
  - a. From the graph given below one can observe that in a semester students appear for exams from 3-5 subjects. This is possible because the exams are computerized, hence, students find it easier to appear for more number of subjects.



9. Does Assignments help in preparing for examination? Do you always attempt assignments before attempting exams?



**CONCLUSION:** The examination system adopted by SCDL has become extremely popular. 90% of the students are satisfied with this examination system.

# **Converting traditional distance learning into fully online learning: A case study of practice at the Open University of Jiangsu**

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**Abstract:** The Open University of Jiangsu (JSOU) is an accredited, publicly funded, distance education institution with administrative offices in Nanjing. In the year 2012, it has been granted by the Ministry of Education of China the status of genuine university with the right to issue the Bachelor Degree (non-honour) to adult students and the name. It is a key divide from the Jiangsu Radio and Television University (former name), which is afflicted provincial educational branch offering the Central Radio and Television University courses. The new University now has converted from a blended teaching educational institution into a fully online teaching university.

This case study describes the practice of the JSOU's conversion into a fully online teaching university. The study adopts a systems framework to focus on the circumstances and issues concerning the online programmes delivery and the student support services.

**Key words:** conversion    programme delivery    online teaching and learning

## **Introduction**

The Internet has been part of everyday life and it has penetrated every tissue in the modern society. It make possible for people in dispersal geographical regions communicate without leaving his/her armchair. In education, it has changed the profiles of the traditional universities and the traditional open universities which offer distance education to working adults on or off campus (Mackness, Mak, & Williams 2010; La Paudula, 2003).

Ubiquity of the internet creates the potential to provide learning to new cohort of customers, to ease capacity constraints, and to capitalise on emerging market opportunities (Rinear, 2003). Up to the present time, Online teaching and learning expands the educational process beyond the traditional on-campus experiences (Brigham, 2001; Gecer & Dag, 2012). Teaching a distance course is quite different from teaching in a traditional classroom and different from mainly lecture and text based classroom (Rudenstam, & Schoenholtz-Read, 2010). It appears the integral and crucial

part of the higher education.

In recent years, the central government of China advocates the online training to compensate the shortage of the qualified working hands in the rural and urban regions (Ministry of Education of China, 2010). The local governments spend millions of investment on the establishment of the cloud of learning, hoping to speed up the online learning and teaching with the MOOCs as the model (Educational Council of Jiangsu, 2010). Consequently, some distance educational institutes have been granted independent status for offering online education. Luckily, the Open University of the Jiangsu has gained this golden opportunity to be shortlisted into this category.

In this paper, we intend to address the concerns and issues relating to a traditional distance teaching organisation and its conversion to online teaching and learning. We first in this case study describe the current practice of the JSOU's conversion into a fully online teaching university, focusing on the circumstances and issues concerning the online programmes delivery and the student support services. Some problems and lessons will be discussed at large and lastly take a further look into the future for the bright prospects of the online teaching and learning.

### **A Profile of the Open University of Jiangsu (JSOU)**

Before dwelling upon the main issues of the case study, we first here take a quite brief look at the university itself.

The JSOU is an accredited, publicly funded, distance education institution with administrative offices in Nanjing. In the year 2012, it has been legitimated by the Ministry of Education of China (2012) the independent status of university with the jurisdiction to award the Bachelor Degree (non-honour) to adult students. It is a crucial divide from the Jiangsu Radio and Television University (former name), which is affiliated provincial educational branch relaying varieties of courses of the Central Radio and Television University. The new University has now been repositioned from a blended teaching educational institution into a fully online teaching university since its earning the independence status with the name open university.

### **The Practice in the Period of Jiangsu Radio and TV University (JSTVU)**

Now let us take a rather brief retrospection of the former body of the Open University of Jiangsu and its practice in teaching and learning.

Central Radio and TV University (now the Open University of China) acted as the headquarters for the distance education, and the primary program provider and evaluator. JSTVU was a provincial partner of CRTVU, and involved in part in course design, tutoring, administration, course monitoring, and assessment. JSTVU is comprised of 14 local learning centres located in cities and municipalities scattered throughout Jiangsu Province. Each local learning centre employs managers, tutors, assessors, monitors, and

learning caretakers. In sum, the learning centres' job is to relay the courses and instructions to students, who are often working in small towns and in outlying rural areas.

CRTVU and JSTVU use the Internet as its primary means of communication. ATM networks have been established with the LANs-based learning centres throughout the province (Zhang & Hung, 2007).

In reality, the provincial Radio and TV universities worked as the relays of the academic programmes. The learners had null interaction with the peers and tutors via the internet but in the real classroom on campus.

## **The Current Practice**

### ***1 Organisational Structure***

The JSOU is structured as two streams: a stream is the full time campus education, mainly accounts for the vocational programmes at the associate level, plus some jointly programmes with a traditional university of the province at the baccalaureate level. The other stream is the distance education offering programmes for the part time working adults. Before the year 2012, it relayed programmes all by the CCRTVU, though it is almost so up to date. For assurance of the successful conversion from the blended learning institution to fully online teaching one, a new organisational structure has been shaped. A vice president was appointed for the online programmes designed by the JSOU, who takes accountability of monitoring the courses of the action. A Registrar was appointed for the online learning and teaching management and the evaluation. Three divisions were set up for the academic affairs: course design, management, tutor training and relative affairs. These are specifically prepared for the programmes offered by the JSOU. Other organisational units have been shared with the stream of vocational education: Enrolment Office, Students Affair Office and some other support units: a computing centre, an administration office, a logistics unit, to name a few.

### ***2. Shared Infrastructure***

For the course delivery and communication, a new platform with LMS was outsourced and developed by a high-tech company. This JSOU learning platform is one-stop learning centre with all the courses and relevant learning databases. The learners of the JSOU can log in their courses from anywhere, anytime if they registered. The new platform is shared by the headquarters in Nanjing, and learning centre throughout the Province.

Learning centres are located in every township of the province helping the programmes promotion, the student's registration, extra learning support services, such as computing facilities, learning booths and function rooms if being required.

Local full time tutors and academic counsellors without teaching responsibilities in the new learning system mainly come from the learning centres with largest student cohort. The benefit for this practice is that the online learners have the feel like learning together with old friends. They share the same vernacular when they have the telephone communication or face-to-face. And it facilitates the motivation of the learning centres for more teaching jobs for local employees. However, some tutors and academic counsellors are appointed from any learning centres and even some course designers join the troops of tutors for the reason of improving the quality and service of the courses, with the intention of acquiring the feedback from the learners.

Each tutor has been assigned one class of 30-50 students, some might have 3 classes. Their daily routine is facilitating the discussion on the web forum, grading the assignments, offering particular services to specific learners and having communications with the students on and off line for academic or even daily affairs. The chief task for the academic counsellor is helping the tutor with the administrative jobs, helping the students with their courses and then degree completion.

### ***3. The Learners Cohorts***

Three student cohorts have been enrolled for JSOU programmes. Most of the students are AA degree holders, with some exceptions of Bachelor degree holders for professional development. With the range of ages from 19 to 43, most of the learners are net generation and digital natives, that is, they were born in late 80s and 90s of last century when the economic and internet booming in China. In a certain sense, they are not so good at conventional literacy but good at computing and internet literacy. And they have good capacities in images, visual arts, high technologies and are trendy chasers full of curiosity. In practice, we have found that designing online courses and tutorials are really quite a challenge to the course designers and tutors.

### ***4. New Academic and Professional Programmes***

With an enrolment of nearly 12,000 students for the successive semesters (currently, the administrative staff in house and students are still with the traditional system of the semesters as the traditional universities. Week-based learning cycles are under consideration and prospective to change in the near future), JSOU awarded 4 programmes at baccalaureate level in cultural entrepreneur, business management, civil engineering and ecosystem engineering. Apart from these 4 Bachelor degree programmes, 7 programmes with similar subjects are provided for the around 3,000 applicants in one semester at the associate level.

All these programmes are clustered with diverse compulsory and elective courses just as traditional universities. However, with the JSOU as a platform the programmes are jointly constructed with different intelligent sources from experts from traditional universities, business, industry, research institutes and so on. The course contents have been updated with the new events and new development and offered to different levels

of learners. Some are more academic and some are more professional and more fragmented for the busy working adult online learners.

The evaluation of the courses has been designed and arranged as paper-based and online formats according to the characteristics of the courses.

### ***5. Course Delivery***

Web-delivered, multimodality courses with the supporting video clips and online tutorials. Social media has been involved in the online teaching. The courses integrate text, audio and videos, blog, wiki, forum, podcasts plus some popular social software such as QQ and Wechat. These social media have been widely used by students and the educators. Group for chatting online is quite easily organised and can be expanded to list 1,000 participants. Just because of its synchronic characteristics, the academics in JSOU utilise it as the working tool to connect colleagues for academic and administrative affairs. Emails have been dropped out of the tools for communication.

Taking into the consideration of the learning strategies and learning habits, the printed learning materials are also provided for registered online learners in case they need them while they were away from the access of computers and internet.

Also we have to point it out that some traditional distance learning and teaching devices such as face-to-face tutorials were permitted for the elder learners at the beginning of the course of study. Compared with the younger generation, they are the digital immigrants, lack of computer literacy, heavy likings in telephone communication. They really need more attendance and in-house support service to escort them into the autonomous online learning.

The contemporary practice by the JSOU has received positive responses and feedback from the students, faculty, staff and the educational authority, though some complaints occur here and there. From this September, the JSOU tends to reduce the recruitment of numbers of the students for total quality control and quality assurance for the coming appraisals conducted by the educational authority of the central government.

### **Problems Experienced**

In practice, some problems have been experienced. We summarise them as the follows:

#### ***Heavy Academic Workload***

Frankly all the participants in the JSOU online programmes have suffered the heavy workload in every aspect. Let us pick the academic workload as a demo. The in house academics provide too heavy workload for the busy working adults, treating them as the full time learners on campus. Reading materials designed extends too many screens without any break. And the online learners registered too many courses at one stop without taking their free time into the consideration. Just so, all those who get involved



in the programmes are quite busy with less efficiency. Cost-effective means have been neglected for rushing to success.

### ***Less Time Involved in the Online Learning***

Just as we mentioned above, more registered courses mean less duration for the completion of the degrees. It also means less time can be spared on each course in their free time for the working adults. Online learning is really quite new for the traditional distance educational institutions in China. Many incidents from the students have not been fully anticipated because of the take-for-granted three-tiered structure framed in the RTVU times.

### ***Less Motivation for Learning***

The societal factors will have surely a dramatic impact on the distance education, especially so for the online education, which is experiencing a suspicious future with fierce competition from the traditional elite universities. The strong motivation for degree completion in shortest time prevails among the learners. Heavy workloads from their workplaces, from the families, from their registered courses worsen the situation. Anxieties and worries occurred and weakened the motivation of online learning.

### ***Weak and Fragile Platform***

Online learning required a stable and multi-functioned learning platform. The current platform is constructed by an outsourced high-tech company. Frequent communication and feedback from the end-users have not been quickly reflected in the construction. Its occasional collapses annoyed the learners and academics, and caused unnecessary complaints. However, it is improving as the learning goes on.

### ***Committed Tutors Shortage***

Tutors have been appointed mainly from the local learning centres when they have large student cohort. The purpose of so doing is for the convenience of providing student support services. The other side of the blade is that these local tutors also have their own campus students to teach. Classroom teaching is comparatively a routine job for them. It is just lectures from one to all (Price, Richardson & Jelfs, 2007). However, in the online teaching, they have to deal with 30-150 students individually even in the online forum. There exists gap between the course designers and the local tutors. There is much to be desired for the online tutorials. This should be overcome by the on-site training.

### ***Less Experience in Designing Online Courses***

The JSRTVU was just a relay of the CCRTVU for the academic programmes and courses. However, the programmes by the JSOU mingled with academic and professional orientation. The academics are all newcomers in designing the online courses, though they are skilful in designing courses for full time students on campus. Some theories and best practices have been introduced to them by some distance learning institutions in Hong Kong and Britain. But knowing is one thing, doing is

another thing. Here we are happy to say the previous courses have been updated and improved after they executed the newer courses.

### **Conclusion**

In this case study, we, firstly, have quite briefly introduced the history of the JSOU to provide the background and then described the contemporary practice conducted in JSOU in terms of organisational structure, shared infrastructure, student cohorts, new academic and professional programmes and course delivery. The current practice is not perfect though, it shows considerable bright prospect for the ongoing practice. Formal and official assessment will be conducted soon recently, but it will be another paper. In the last part we reflected the problems experienced and lesson learned in aspects of tutors, learners, technology, workload and the course designs.

Through the case study, we have found it is not easy job to convert from a traditional distance educational institution into a fully online teaching university. It is more liable to provide learner support service in house than outsource it. However, different organisations have different requirements and capabilities. In the prospective future, we hope, the cycles of course providing period will be in line with the online learning format: register, engagement in learning and completion of the course just any week in the learner's available time.

**Note:** Shu-chiu Hung ② the corresponding author

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# Distance teacher education for a better school Curriculum 2013

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## Abstract

It is generally accepted that teacher education should contribute to the improvement of education at school levels. It must also be the case for Universitas Terbuka (UT) distance teacher education which has the main mission to continually improve school teachers' academic qualification as well as their competencies. It is the time for UT to make much better contributions to the Ministry of National Education and Culture (MONEC) which has made the national policies to develop and implement the Curriculum 2013 for all schools nationally. For all school teachers to catch up with current needs to implement the Curriculum 2013 successfully, teacher upgrading as well teacher refresher courses are needed to be made in line with such real and urgent needs, i.e. teachers' professional development. It is within those context that teacher education curriculum in UT needs to be reengineered accordingly.

Analysis of foundational ideas and principles applied in the Curriculum 2013 was done through discussions with members of the Core Team of the Curriculum 2013 as well as senior faculty members in UT Faculty of Teacher Education. It strongly indicated that there were urgent needs to reposition the UT teacher education program in order to suit them to the prospective needs of quality education in schools by strengthening the implementation of the Curriculum 2013. The following activities are among those efforts which will likely answer UT teacher education roles: (1) Mapping out and assessing the congruency as well as contingency between the existing teacher education curriculum and related aspects of the Curriculum 2013; (2) Deciding which of the teacher education of curriculum components are really tied up to substantive, pedagogical, and management dimension of the Curriculum 2013; (3) Realigning and redeveloping necessary subjects, instructional process, learning activities, learning climate, learning assessment, and/or instructional management aspects; (4) Developing on-line refreshers and/or retraining programs for tutors, teaching supervisors to improve related tutorial modes and related resources and (5) Planning evaluation program of the realignment programs for assessing their impacts.

### Key Concepts:

Curriculum 2013, school-based, life-long learners, teacher education, responsible citizen, online refresher programs

## I. Background

Academic as well as professional discourses on issues of education of teacher have undergone widely across practical and theoretical boundary lines. Such educational discourses have also been formally implied on policy decisions in the Indonesia House of Representatives, education bureaucracies, and general public both at national and local levels. To some extent such phenomena emerged as one of the logical implications of globalization as those characterized wide innovation and open competitiveness in almost all aspects of human interaction, particularly to deal with educational endeavors.

Accordingly, needs and challenges for quality education, including the quality of teachers are paramount in the Indonesia system of education. Such a condition has also been strengthened by constantly changing world, particularly those dealing with democratization campaign which strongly address the ideas of equity, quality, relevance, and accountability in education. Accountability movement, in particular has become concerns and commitments of educational academician as well as political leaders in Indonesia. It is collectively believed that educational system must be regarded as the right vehicle to accomplish educational challenges of the 21st century. Within such a condition it is believed that the role of teachers as the educators of young generation, are of the importance. Therefore the policy to upgrade teachers' academic qualification as well as competencies such as imperatively backed up by the Act 14/2005 on Teacher and Lecturer are of the highest national priority of the Indonesian national system of education.

Historically, it must be acknowledged publicly that teachers' qualification as well as teacher's professionalism have become the government concerns since 1950s until recently. To mention briefly, the upgrading of primary school teachers from lower teacher training holders (*SGB/PSGB/KGB*-a four years post-primary school teacher training) to become the high teacher training holders (*SGA/KGA/SPG/KPG*-a three years post-secondary school teacher training) in 1960s; then moved upward to become the holders of Diplome II holders (*D-II*-a two years post-senior high school teacher training) in 1991. Finally since 2005 it has moved even more upward to become the bachelor (*Sarjana* or Diplome IV) holders (*Sarjana/D-IV*-a four years post-senior high school teacher training). Those policies have been made by the Central Government to ensure the increasing quality of teachers and teacher education program.

At the university education level, the opening of Indonesia Open Learning University (UT) in 1984 was basically mandated to promote teachers' academic qualification and competencies through distance teacher education. It has clearly opened the government as well as public's eyes that distance teacher education has been accepted as one of teacher education paradigm for Indonesia. Since then distance teacher education format has been widely implemented as the integral part of the national system of education.

Constitutionally, (Winataputra: 2010) teachers' professionalism has been reemphasized both by the Act No. 20/2003 about the National System of Education (hereafter called Education Act) and the Act No. 14/2005 about Teacher and Lecturer. Both Acts require a fixed minimum level of academic qualification i.e. bachelor degree for teachers and master degree for Lecturers as well competence mastery through the process of educator certification for both teacher and lecturer. Later at the implementation level both Acts have been operationally defined within

both the Government Regulation No. 74/2008 concerning Teacher as well as the Government Regulation No. 37/2009 concerning Lecturer. Conceptually such a regulation has reconfirmed the ideas that professional teachers/lecturers as educators must have both a good academic education and good professional training in pedagogy. These are aimed to reassure that all learners along the routes of their formal education (primary to university education) surely receive acceptable quality education. These also imply that the Government must improve teachers' welfare, accordingly.

It is generally agreed that one of the mission of teacher education is developing in prospective teachers or teacher on the job, a set of teacher's professional competencies on: learning how to learn, learning how to teach, and learning what to teach (Turney, 1978; Houston, 1991). Accordingly, along the history of teacher education, one of the main issues addressed unendingly is to deal with the ideas of integrating pedagogical and substantive dimensions in teacher professional development. It is on this issue that UT distance teacher education has been devoting its efforts to help Ministry of National Education and Culture (MoNEC) make sure that teacher professional development is holistically addressed. It is within that context that this article is dealing with.

## **II. The Curriculum 2013: Challenges for Readdressing Teacher Education**

The development and implementation of the Curriculum 2013 have challenged the Government to readdress teacher education. The national government i.e. MoNEC has committed to substantiate the national goals, i.e. building nation and character as constitutionally mandated in the Preamble of the 1945. Truly, the development of intelligent Indonesian wellbeing, which has been fully adopted as the ultimate goal of the national system of Indonesian education must be considered as unending national commitment. It is for achieving such fundamental goal that along the history of Indonesian education the Government has developed and implemented some school curricula sequentially as those depicted in the following Figure.

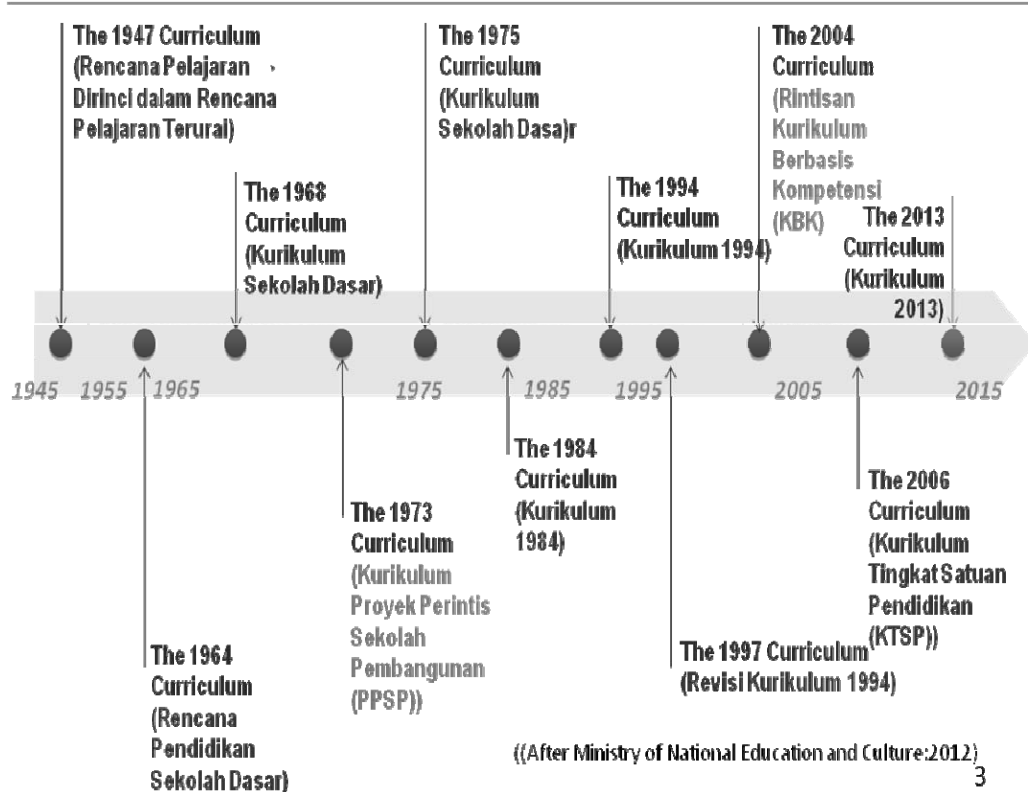


Figure 1. Historical line of Curriculum Implementation in Indonesia since 1945-2012

All the above 10 school curricula have been implemented within nearly seven decades of the Indonesian educational system. They were developed at the national level and implemented nationally at school levels throughout Indonesia. Except for the 1973 Curriculum which was developed through research and development strategy, the other 9 curricula were developed through management model i.e. the curricula were developed by applying top-down strategy in the Ministry of Education at the national level. The 1994 Curriculum and the 1997 Curriculum (Revised Version of the 1994 Curriculum) were developed and implemented in accordance with the 1989 National System of Education Act, which emphasizes the national-based curriculum. The 2004 Curriculum and the 2006 Curriculum were the curricula developed according to the National Education Act No. 20/2003. Both curricula were developed by way of applying competency-based curriculum development. (Winataputra, 2013)

Philosophically, all curricula implemented so far, predominantly used perennialism and essentialism mindsets which fundamentally treat the curriculum as a subordinate of well tested values and academic traditions.(Brameld, 1985; Oliva,1986). So, academically continuous changing of curricula is nothing strange, it is the natural matter. In this context, the writer shares the ideas that curriculum can be considered as a progressively modifiable ideas, plan, and reality (Taba, 1962; Stenhouse,1975; and Oliva,1986). Sociologically, curriculum changes should normally be congruent with changing needs and development in society. Here, the writer share with constructionism mindset,

advocating curriculum to suit to community needs and development (Brameld, 1985; Oliva, 1986). It is also inspired by the ideas dealing with commitment to deal with 21st-Century Schools (Schrum and Levin, 2009). On the other hand, competency-based curriculum which is basically advocated by progressivism, requires the curriculum nothing to be subordinate of well tested values and/or academic domains, but in reversed subject matters are subordinate of curriculum. In other words, the competencies needed should decide the curriculum, not in reversed. The 21st century education, requires the curriculum which are driven by the 21st Century's needed competencies.

For Indonesian education to accommodate current scientific and technological progresses as well as changing Indonesian society's needs, the Government's efforts to continually improve the school curricula have been undergone recently. It is hoped the new curricula would be able to fulfill the Middle Range National Development Plan mission which call for revisiting all the better thoughts and efforts to improve the existing 2006 school-based curricula or the *KTSP* curricula. In addition, it is also argued that in achieving the era of 100 year Indonesian Independence in 2045, it was believed that there would be unprecedented great number of productive age population, commonly called as a Demographic Bonus. It must be the responsibility of the national educational system to educate the great number of productive age population to become competent and responsible citizens. Any failure to do so, the Demographic Bonus will inescapably become the socio-cultural disaster. Of course, it must be no one among Indonesian who expect it as a catastrophic dream. Accordingly, a shared national commitment with sustainable government and public efforts to prepare great Indonesia, must be strengthened.

Paradigmatically, the whole process of development of the Curriculum 2013 applies the following framework.



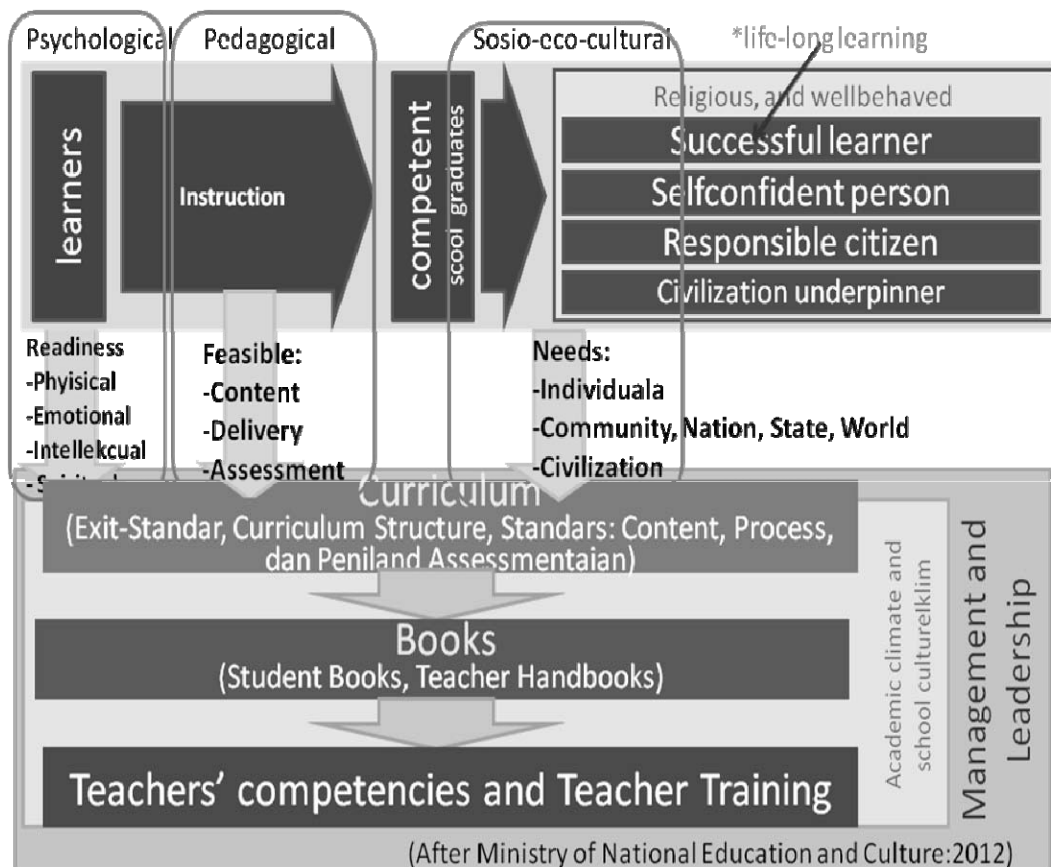


Figure 2: General Framework of Curriculum Development

The development of the Curriculum 2013 was basically undertaken to reemphasize national education for producing highly educated people with high valued characteristics, i.e. religious and wellbehaved persons, successful learners, slfconfident persons, responsible citizens, and civilization underpinner. It is within such a framework that comprehensive considerations in psychological, pedagogical, and socio-eco-cultural aspects have been readdressed. Philosophically the ideas and spirits of recontructed philosophy of education are reemphasized. The great oughts derived from religious creeds as well as from values of the national ideals of Pancasila, academic values derived from science and technology, diversed students needs, and Indonesian socio-eco-cultural potentials are coherently considered in developing the Curriculum 2013. (Winataputra, 2013)

In line with the constitutional imperatives on the Article 2, 3, and 4 in The National System of Education No 20/2003, it is clearly understood that philosophically, the Indonesian educational system has eclectically integrated all for mindsets, i.e.perennialism, essentialism, progressivism, and reconstructionism, which Brameld (1985) advocates as recontructed philosophy of education. The National System of Education is based on and oriented toward the internalization of the great oughts and academic values, the development of individual potentials, and the fullfillment of community developmental needs.

Further, the national curriculum documents were comprehensively developed by the Government to include: the exit standard of education; curriculum framework and structures; and standards of content, process, and assessment. To facilitate instructional process at school level teachers' handbooks as well as Students' Book are designed to be developed and managed at national level. So does it for preparing national trainer of master teachers who will work with teachers in each of school cluster for school-based in-house training. Other supporting schemes designed to facilitate curriculum implementation at school level are improving school leadership and management through the enhancement of school-based management introduced so far.

### III. Readdressing Teacher Education in line with the Curriculum 2013

#### Implementation

Witnessing the history of teacher education universally within the last five decades we have caught the dynamics of innovation in teacher education. Those innovative ideas have generally inspired anyone who are continually concerned with teacher professional development to reposition and reengineer the existing teacher education program in order that it suit the changing needs of education. Conceptually, Turney (1978,5-6) a prominent expert in teacher education of Sydney University, identified 7 (seven) innovation in teacher education. One of those which is relevant to the discourse of the Curriculum 2013 is a Competency-based Teacher Education (CBTE). CBTE the term which has interchangeably been used with Performance-based Teacher Education (PBTE) referring to systemic approach to teacher education with the emphasis on the development of competencies in teachers. This model echoed that a set of competencies need to be developed and treated as the explicit criteria in order to hold the graduate teacher accountable. Further, it was emphasized that prospective teachers or trainee-teachers must be facilitated to achieve predetermined competencies through well-managed and well-motivating educational environment in order that they get public accountability.

The essential characteristics CBTE emphasized by its proponents (Elam, 1971; Cooper et al, 1973; Houston and Howsam, 1972; Schneider, 1973 in Turney, 1977, 17-18) are *precise learning objectives; individualized instruction; accountability; integration of theory and practice*. Even though the ideas has been criticised for being too *behavioristic* (Turney, 1977, p 16-25) the idea of CBTE initially pioneered in USA, in fact has influenced modes of teacher education around the world, particularly within the decades 1970-1990s. It is also to be the case in Indonesia when the government undertook the efforts through The Teacher Education Development Project.

Reflecting on all historical developments in teacher education by the middle of 1980s, the 30 Deans of College/Faculty/ School of Education in USA established *The Holmes Group (THG)* which was dedicated to answer the questions of *low quality of teacher preparation* as the impact of *lack standard, weak accreditation policies and practices, and historic difference to teacher preparation*. (The Holmes Group, 1995). In fact THG has successfully developed a

*grand design* of teacher education which was published in three influential documents: *Tomorrow's Schools, Tomorrow's Teachers; dan Tomorrow's School of Education*. The fundamental ideas of the *grand design* refer to, was the futuristic ideas of teacher education which must be based on the ideas of prospective teachers for prospective learners.

Assessing all innovative ideas and experiences in teacher education, the critical question emerged, i.e. how could we adapt all relevant ideas of CBTE for Indonesian context, particularly those related to all efforts to fully support the implementation of the Curriculum 2013.

In doing so, it is important to understand the main characteristics of the Curriculum 2013. One of the main aspects considered to be unique and essential to the Curriculum are the structure of curriculum in the following ways.

1. The Exit Competency Standard (*Standar Kompetensi Lulusan = SKL*) is a minimum requirement for students to fulfill at each level of schooling exit criteria. Hierarchically, it relates to all of the essences of the national educational goals pronounced exhaustively in the National Educational Act No. 2/2003. The Exit Competency functions as a criteria for scaling down the essence of education and the formulation of each School Level and Grade Level Core Competencies or CC (*Kompetensi Inti or KI*), and Basic Competencies or BC (*Kompetensi Dasar or KD*)
2. Derived from the Exit Competency Standar or ECS) (*Standar Kompetensi Lulusan-SKL*) the CC consists of four clusters of psycho-social aspects interact interdependently and coherently to produce integrated desirable personal qualities, i.e: (After Ministry of National Education and Culture, 2012).
  - a. *Cluster One*: spiritual-based affective competencies to deal with ability of individual to accept, internalize, and apply all goodness derived from religious creed and norms.
  - b. *Cluster Two*: socio-cultural-related affective competencies to deal with the ability of individual to accept, internalize, and apply all goodness derived from the great oughts Pancasila (The Five Principles) in related environment.
  - c. *Cluster Three*: knowledge-based competencies to deal with abilities of individual to recognize, comprehend, apply, analyze, evaluate: natural, social, cultural, political, technological dimensions of life at local, national, and international spheres.
  - d. *Cluster Four*: skills-based competencies to deal with intellectual, social, and kinesthetic abilities i.e: observe, question, associate, apply, present, reason, create, read, write, model, map out, modify, use, create: cooperate, and collaborate.

It looks that such competency clustering has synthesized all taxonomy ideas of educational objectives, such as the earliest Bloom Taxonomy of Cognitive Domain (1956) and Revised Anderson Taxonomy of Cognitive Domain (2004), Katzwohl Taxonomy of Affective domain (1962); Symptom Psychomotor Domain (1967), and Marzano and Kendall News Taxonomy (2001), and finally the newest 21st Century Skills.

The introduction of CC is intended to function as the organising elements of all learning areas within the curriculum system. Accordingly it must be consistent and coherent with the attainment of the Indonesian Educational goals. It was not the case in the 2006 Curriculum which instead of having CC as integrator of all curriculum and instructional processes, it used of the concept Competency Standard or CS (*Standar Kompetensi=SK*) for each of all learning areas as each independent subject attaining a part of the Exit Standard Competencies respectively. It is argued that in order for curriculum to attain the 21st Century Schools missions, or promoting Indonesian education for 2045 challenges, decisions on of CC is very strategic.

In the Indonesian National System of Education (Republic of Indonesia, 2003) the terms stream, stage, and form of education are legally settled. There are three streams of education, i.e. formal, nonformal, and informal education. Within the formal stream there are three stages of education, i.e. primary school education to include primary school and middle school; high school education to include general high school and vocational high school, and higher education, to include university, institute, and academy. It is for all formal education that curriculum improvement is promoted, with special emphasis on school education ,i.e. primary school, middle school, general high school, and vocational high school.

The above curriculum design focusses on the development of individual learners' competencies holistically. Competencies dealing with factual, conceptual, procedural, and metacognitive dimensions are progressively and spirally developed and articulated spirally beginning from primary school up to university levels within the context of the expanding community orientation beginning with family up to universally world contexts. Here a mixed progressivism and socio reconstructionism mindsets are reemphasized. It is understood that in pursuing the future Indonesian young productive generation to approach the 2045 Indonesian era, such mixed mindsets are highly reconsidered. However, it is not to mean that perennialism and essentialism mindsets are forgotten. Knowledge dimensions to deal with conceptual, procedural, and metacognitive aspects, which are considered the core education content derived from academic traditions and well-tested values are included hierarchically in progressive degrees of sophistication along the stage of educations. Again, here a reconstructed philosophy of education is revisited and reinforced.(Winataputra, 2013)

The process of curriculum improvement includes a developmental processes to include curriculum planning, curriculum implementation, and curriculum evaluation, a common standard of curriculum development we all recognised Curriculum planning stage to produce all curriculum documents, learning resources, and teacher training programs are being finalized at the national level. For implemetation a decision has been made by the Ministry to begin with 30% of primary school's grade One, and Four; all middle schools for Grade Seven; and all high School's Grade X, throughout Indonesia.

All related legal aspects to include the revisions of Government Regulation No. 19/2005 and all related Ministry Regulations to deal particularly with National Standards of Education, and curriculum have been done. It is expected that all needed frameworks and facilitating components have publicly affirmed the year 2014.

#### IV. Addressing Teachers' Professionalism through UT distance Teacher Education

It is generally understood, that teacher's competencies on: learning how to learn, learning how to teach, and learning what to teach are the basic pedagogical dimensions of teacher education which need to be developed by all teacher education programs, including that is organised through distance learning format. Referring to formal design of the recent teachers' professional development mandated in the Teacher and Lecturer Act, as well as the national strategies applied for teacher certification (Jalal, F, Samani, M., Chang, C., Stevenson, R.,M Ragatz, A.B., Negara, S.B. (2009) a general framework of teachers education for today's Indonesian context can be outlined in the following ways (Winataputra,2010).

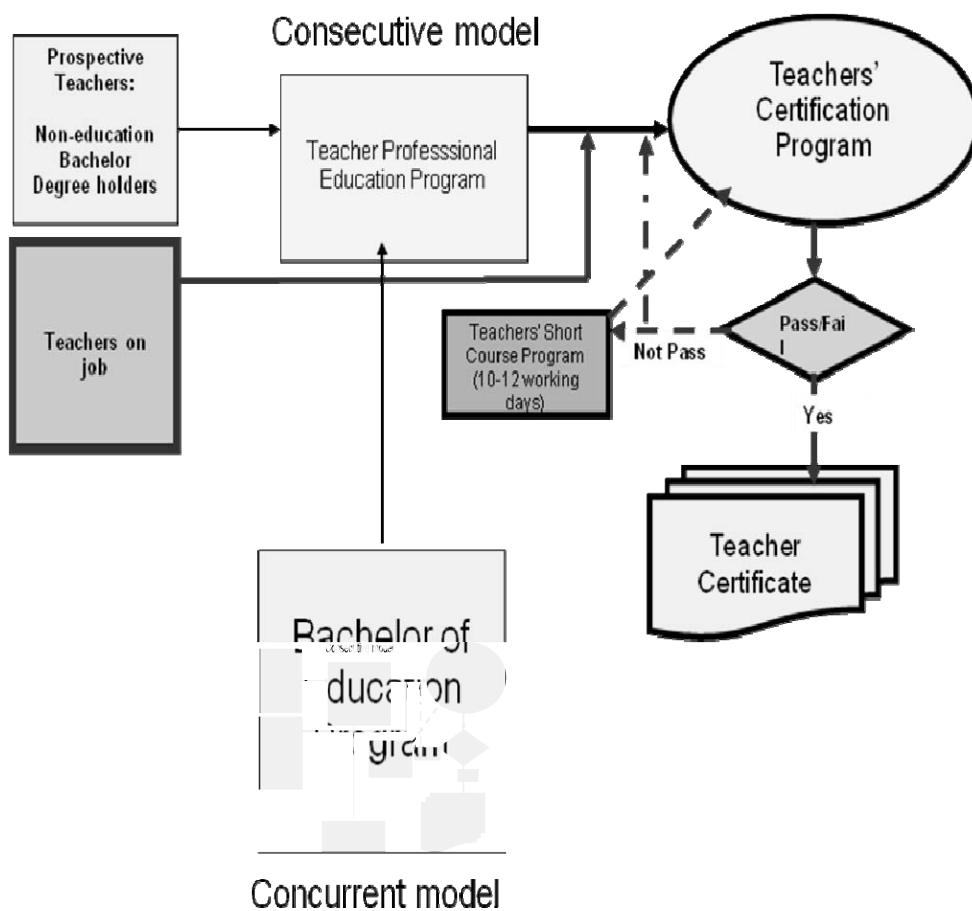


Figure 3. National Teacher Education Paradigm

A distance teacher education implemented in Universitas Terbuka (UT) in the last 30 years, is the educational program of teachers (both at diploma and bachelor or sarjana degrees) provided for those who are already on the job, either as government servant (*PNS*) or community-appointed servants (*Non-PNS*). In other words UT teacher education program is the program education of teachers intended to provide opportunities for all teachers to upgrade their academic qualification as

well as their professional competencies (Universitas Terbuka , 2006). It is within that context that all dimensions of teacher education are very necessary readdressed. It is the idea that UT teacher education program be aligned with the recent needs of the policies on Curriculum 2013 and its real implementation in school communities.

Conceptually, the development of pedagogical dimensions can be depicted in the following ways.

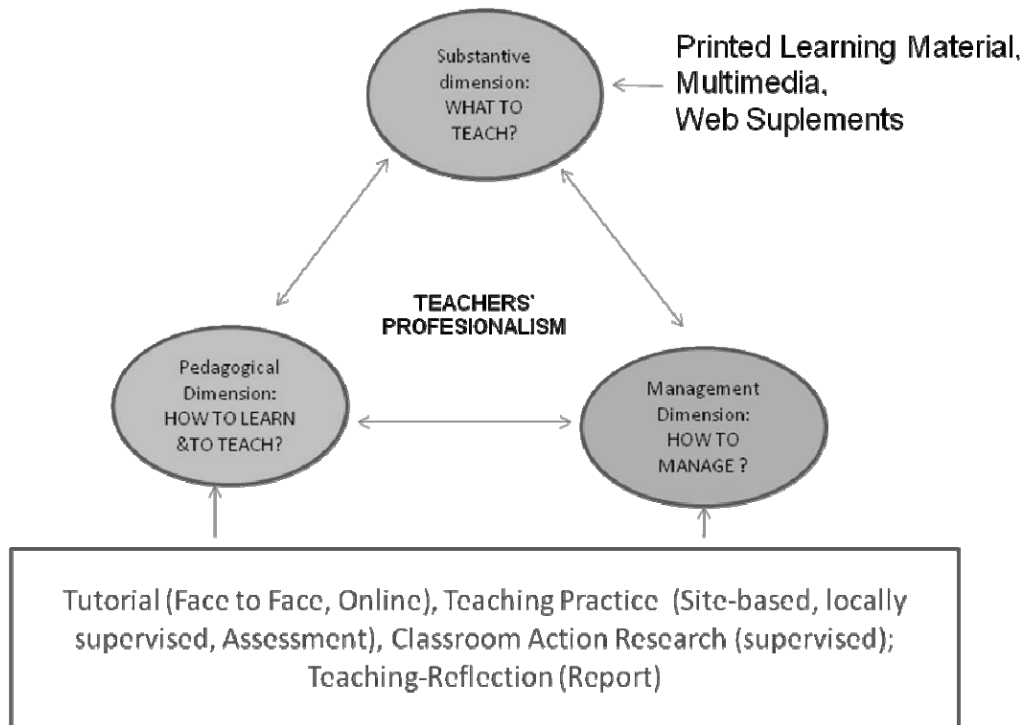


Figure 4. Dimensions of Teacher Education applied in UT

*Substantive dimension* of teacher education, the component dealing with the development of teachers' content mastery or professional competency according to the Teacher and Lecturer Act no. 14/2005 (Republik Indonesia: 2005a), are delivered through printed learning materials, multimedia, and websupplement materials. Those materials are systematically designed as self-instructional modules which facilitate each of student to learn independently. Mastery level of 80% are applied in selfassessing his/her progress in learning.

*Pedagogical dimension* of teacher education, or combined pedagogical and personality competencies according to the Teacher and Lecturer Act, namely the component focussing on teachers' performance are organised through the provision of multimodes tutorials, teaching exercises, action research, and teaching reflection. Aside of the formal based of teachers' pedagogical development depicted above, continuous professional development has also been facilitated through providing on-line access for teachers. Teacher Portal (Intelligent Teacher on-line or *Guru Pintar On-line*) has been established for facilitating teacher professional development in general. It is through all diverse efforts that UT has readdressed the development of pedagogical dimensions in teacher education.

*Management dimension* of teacher education includes preparation, development of all instructional facilities, and site-based learning activities including all tutorial modes and praxis in each of all regional learning center throughout Indonesia. The central issue of management dimension is making use wisely all educational resources allocated both by the National Central Government and local governments.

In trying to deal with the problems faced by UT Teacher Education Program in conjunction with the Curriculum 2013, a series of academic discourses with members of the Core Team Curriculum 2013 in MONEC as well as with senior faculty members of UT Faculty of Education were undertaken through reflective and analytical discussions on foundational ideas and principles applied in the Curriculum 2013. (Ministry of National Education, 2013a,b,c,d,e). Those discussions were done through personal contact and/or group discussions initiated by the Faculty of Education UT from January to June 2014. All matters discussed with colleagues strongly indicate that there were urgent needs and collective/institutional concerns to reposition the UT teacher education program in order to suit them to the prospective needs of quality education in schools by strengthening the implementation of the Curriculum 2013.

Considering all challenges dealing with the Curriculum 2013 as well as potentials and experiences UT already have as teacher education agency so far, it is time for UT teacher education program to realign the program to the needs the government for teachers' professional development. Attempts need to be made are as follows.

1. Repositioning the UT teacher education program (Primary School and secondary school teacher education programs) in response to the needs for the tomorrow's school education needs.
2. Reorienting teacher education curricula in response to prospective needs of quality education in schools – the tomorrow's school orientation.

In committing to reposition and reorient the UT Teacher Education program, the following efforts are suggested to be made.

1. **Mapping out and assessing** the congruency as well as contingency between the existing teacher education curriculum and related aspects of the Curriculum 2013.
2. **Deciding** which of the teacher education of curriculum components are really tied up to substantive, pedagogical, and management dimension of the Curriculum 2013 and those likely need necessary treatments;
3. **Realigning and redeveloping** necessary subjects, instructional process, learning activities, learning climate, learning assessment, and/or instructional management aspects;
4. **Developing on-line refreshers and/or retraining** programs for tutors, teaching supervisors to improve related tutorial modes and related resources in order that they should be able to facilitate students' how to learn skills students' how to mediate learning skills students', how to assess learning skills, and how to continually improve learning awareness;
5. **Planning evaluation program** of the realignment programs for assessing their impacts.

## V. Concluding Remarks

1. Indonesian education needs to catch up with current scientific and technological progresses as well as changing Indonesian society's needs. In doing so the central government's efforts has decided to continually improve the school curricula . The development of the 2013 Curriculum which is basically intended to suit educational process to new challenges for future Indonesian education approaching a 100 year Indonesian independence in 2045.
2. It is important to understand foundational ideas and principles which could explain the the reasons to improve the existing curricula. Conceptual analysis have been applied to look into all national foundational imperatives which call for improving school curricula. All education stakeholders need to enhance both national concern and collaboration for the bettermen of future Indonesian generation through building and implementing quality education, primarily that for schools.
3. The new Curriculum 2013 is expected to fullfill the Middle Range National Development Plan mision which call for revisiting all the better thoughts and efforts to improve the existing 2006 school-based curricula or the *KTSP (Kurikulum Tingkat Satuan Pendidikan)* curricula. The process of curriculum improvement has included a developmental processes to include curriculum planning, curriculum implementation, and curriculum evaluation. Curricuum document, learning resources, and teacher training programs were done at both national and local level.
4. To facilitate the implementation of the Curriculum a decision made by the Ministry to begin in 2013 with 30% of primary school's grade One, and Four; all middle schools for Grade Seven; and all high School's Grade X, throughout Indonesia, teacher professional development have been lounched to get them refreshed and retrained. Teachers as professional educators have the main responsibilities, i.e. educating, teaching, guiding and counseling, directing, training, and evaluating learners at formal childhood education, primary education, and secondary education. To do so, professional teachers need: a good education of teacher, a good training in pedagogy, a good school-based management , and good rewards and acountability.
5. The tomorrow's schools needs: teaching and learning for understanding ,creating a learning community; teaching and learning for understanding for everybody's children; continuing learning by teachers, teacher educators, and administrattors; thoughtful, long-term inquiry into teaching and learning by school and university faculty working as partners; and inventing a new institution



6. The Tomorrow's Teacher ideas emphasize the need to: make teaching intellectually sound; recognize difference in teachers' knowledge, skill, and commitment; create relevant and intellectually defensible standards of entry into teaching; connect schools of education to the schools; and make schools better places for practicing teachers to work and learn the formal based of teachers'
7. Teacher's professional competencies on: learning how to learn, learning how to teach, and learning what to teach,- the basic pedagogical dimensions of teacher education have been addressed through: (1) printed learning materials, multimedia, and web supplements; (2) learning assistance through tutorial (Face to Face, Online), Teaching Practice (Site-based, locally supervised Assessment), (3) Classroom Action Research (supervised); (4) Teaching-Reflection (Report).
8. Continuous professional development has also been facilitated through providing online access for teachers in general with a pilot DGHE-UT network, the Teacher Intelligent Portal. It is though all diverse efforts that UT has readdressed the development of pedagogical dimensions in teacherr education.
9. There are real needs to reposition the UT teacher education program (Primary School and Secondary School teacher education programs) in respon to the needs for the tommorrow's school education needs and to reorient teacher education curricula in respon to prospective needs of quality education in schools – the tomorrows' school orientation.

Pondok Cabe, 29 July, 2014

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# **The interplay between gender, learning approaches and academic performance in Chinese sub-degree and degree students**

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## **Abstract**

The community college has been the alternative choice for secondary school graduates on the verge of enrolling in government-funded universities in the Hong Kong higher education system over the past decade. This study examines the relationship of gender, learning approaches and academic performance among 250 Hong Kong Chinese sub-degree and degree students. Students participated in the study responded to the Biggs's Revised Two-Factor Study Processes Questionnaire (R-SPQ-2F) and McAuley's Revised Causal Dimension Scale (CDSII). The results indicate that the deep approach and academic performance is positively related. Implications of the findings are discussed for tertiary teachers and counselors.

Keywords: Learning approach, academic performance, sub-degree and degree students.

## **Background**

Many educators have believed that academic performance is largely due to individual differences in ability. Many studies over the past decades tried to examine key determinants of academic performance in an attempt to develop adequate interventions to enhance teaching and learning in different school settings. Studies have focused on the investigation of individual variables other than ability such as gender, locus control, or self-concept. Among other factors, learning approaches appear to be major predictors of scholastic performance. It is important to identify student characteristics that can be enhanced in school setting to promote better academic performance.

Community college education has been offered in Hong Kong for 14 years. In response to the Government's Education Commission Report in 1999, the first Community College was established in Hong Kong since 2000 in order to provide a multi-layer higher education system for secondary school graduates who were aged

between 17 and 21 years. Both associate degrees and higher diplomas programmes are provided with a two-year curriculum of 450 teaching hours per year on a full-time basis. Following American community college education, about 50% of generic courses, namely Chinese, English, arts and humanities, science and technology and ways of knowing are covered in the associate degree curriculum. Higher diploma curriculum aims to provide a solid foundation in a specialized area which constitutes about 60% of specialized courses. It is expected that associate degrees are more academically oriented and higher diplomas are more vocational focus. Both programmes are equivalent to 50% of a four-year university degree of the North American education system or one-third of a three-year university degree of the British system. Both programmes provide a wide range of courses from arts, business to Chinese medicine in an attempt to address students' interests. Community colleges are one of key points of access to Hong Kong government-funded universities and play a crucial role in offering further educational opportunities to secondary school graduates.

While little research has been conducted on full-time Chinese sub-degree and degree students in different higher education institutions in Hong Kong, this study examines relationships of gender, learning approaches, locus of control and academic performance of these students. The trajectory for success may differ for two different higher education institutions.

### **Recent Development in Hong Kong Higher Education**

The Hong Kong educational system is regarded as competitive and examination-oriented (Hau, 1992). Entry to government-funded universities is very selective and assessed by a series of public examinations in Hong Kong. Education is considered as a means of obtaining upward mobility and economic enhancement. Only 2% of the 17-to-20-year-old age group could access higher education in the 1970s in Hong Kong. The government altered its policy in 1989 to expand the tertiary education sector from 6% in the 1980s to 18% in the 1990s. This policy shift is partly due to a large demand for a well-educated workforce and the partial removal of highly qualified workforce through emigration during the pre-1997 period. About 18% of the relevant age group was able to receive government-funded university education in 2013. The Hong Kong Education Commission document "*Learning for Life: Framework of Education Reform*" (EC HKSAR, 2000) emphasized the need to provide a diversified, multi-channel and multi-layer higher education system in Hong Kong. A target of increasing the percentage of senior secondary school graduates to receive higher and further education was set by the government from 30% to 60% over the next decade in

2000. The target had already been met by 2005 because the number of self-financed sub-degree students such as higher diploma and associate degrees offered by tertiary institutions had increased more than 550 percent from 2621 to 17,077 from 2000 to 2005. Other developed nations such as South Korea and the US had reached the 80 percent target for participation of high school-leavers in higher and further education and Australia reached 70 percent (SCMP, 2006).

Sub-degree programmes are often taken by students from less advantaged academic background who were not able to achieve sufficiently high grades in public examinations to obtain an offer on a full-time undergraduate programme at the university due to a limited number of government-funded places in Hong Kong. Using the sub-degree programme as a stepping-stone into university, therefore, is a major objective for students who did not achieve the grades in advanced level examinations to gain admittance to the government-funded universities in Hong Kong. Some students have been prevented from completing schooling because of economic factors. The Hong Kong community college system is modeled after both the American and British higher education system. The development of the associate degree was influenced by American model. The higher diploma was modelled after the British system. The government only offers partial financial assistance to those sub-degree students including means-tested grants, non-means-tested loans and travel subsidies (EMB, 2006). The HK\$5 billion Continuing Education Fund sponsors students to pursue continuing education, training courses and sub-degree programmes to facilitate the expansion of higher education sector. The government has used a ‘public-aided approach’ to expand the higher education sector from public dominance to a public-private combination.

More of the “average” students are able to receive higher education. The government educational policy of expansion of higher education and the sub-degree programmes are major developments in post-secondary education in Hong Kong over the past seven years. Mindful of budgetary constraints, the Hong Kong government intended that the expansion of higher education would be driven by self-financing education institutions. The self-financing associate degree or higher diploma programmes are seen as bridging programmes to the degree programme in Hong Kong. Under this new articulated system of post-secondary education, more students from less advantaged academic backgrounds are able to access higher education. More students from less advantaged academic background are able to pursue higher education. Given the specific nature and academic background of these students, there is a need to develop a greater understanding of major factors to shape their educational success.

With a portrayal of examination-oriented and utilitarian type of education, there have been anecdotal descriptions about Hong Kong Chinese students as rote-learners. It is argued that the examination-oriented entry selection results in a didactic teaching and rote-learning approach for most secondary school students in Hong Kong (Watkins & Biggs, 2001). For most of the sub-degree students, their previous educational experiences can be summarized as didactic teaching and passive learning in response to tightly structure examination-oriented courses. Research studies in various countries (Entwistle & Ramsden, 1983; Kember & Gow, 1991; Marton & Saljo, 1976; Thomas & Bain, 1984) show that students are likely to adopt a surface approach rather than a deep approach to learning if the learning environment is unfavourable such as didactic teaching approach, heavy workloads and lack of intrinsic motivation.

Research by Kember and Gow (1991) argue that the perception of Hong Kong students being prone to rote-learning is partly due to the nature of the curriculum and the teaching environment such as a heavy workload, surface assessment demand, lack of intrinsic motivation or didactic teaching style rather than as an inherent characteristic of Hong Kong students. Several research findings have reported that Hong Kong Chinese students tend to link the process of memorization and understanding to enhance learning (Biggs, 1994; Gow et al, 1996; Kember & Gow, 1991; Marton et al, 1996; Watkins & Biggs, 1996). Students adopt a 'narrow orientation' by systematically working through material section by section, tending to first understand and then to memorize what they had learnt. Hong Kong tertiary students appear to be good at rote-learning and memorization and they are unwilling to think more deeply about their subject (Pratt, Kelly and Wong, 1999). Students were perceived as having a non-critical and non-analytical approach of learning. The empirical results of learning characteristics of Hong Kong Chinese students are mixed. Biggs (1989) reported that Hong Kong Chinese students achieved higher scores on the deep approach than their English speaking students at Hong Kong international schools.

### **Gender, locus of control, learning approach and academic performance**

There are a large number of studies to examine learning approaches and academic performance (Biggs, 1993; Cano, 2005; Hay, 2007; Sternberg, 1997). Biggs's (1979, 1987, 1992) model of students' learning approaches suggests three components – presage-process-product (3P) mode in the classroom. Presage addresses experiences before learning takes place. Process concerns learning strategies. Product focuses on learning outcomes after learning has taken place. Biggs's 3P model addresses three

components in the classroom which propose that personal and situational factors influence a student to adopt a specific approach to learning that influences the learning outcomes achieved.

According to 3P model, two major learning approach take place. A deep approach involves searching meaning and relating information to knowledge already acquired. A surface approach acquires rote learning and places emphasis on detail rather than relating links between concepts. The deep approach is expected to be conducive for learning in higher education. Learning approaches can be affected by variables such as heavy course work, didactic teaching method, or over-lecturing in Hong Kong (Diseth, 2011). It has been argued that students using the deep approach are often academically high achievers (Fenollar, Roman, & Cuestas, 2007; Ho & Hau, 2008; Sins, van Joolingen, Savelsbergh, & van Hout-Wolters, 2008). Empirical studies are mixed regarding the relationship between deep approach and academic achievement. Studies by Trigwell, Ashwin, and Millan (2013) and Diseth, Pallesen, Hovland and Larsen (2006) found that no direct relationship between deep approach and academic performance was observed. Lizzio, Wilson, and Simons (2002) found a positive relationship between surface approach and academic performance among commerce students.

Locus of control is one of the most researched constructs in the area of personality (Rotter, 1990). The locus of control refers a person belief in relation to the placement of control over his or her life events (Jonassen & Grabowski, 1993). It is believed that an individual student's locus of control shows his or her attitude and motivation for learning. An internal locus of control indicates that the student takes personal responsibility for his academic performance. An external locus of control refers his belief of little personal control over his learning (Sinclair, 1991). Appreciation of responsibility is associated with better achievement outcomes. Findley & Cooper (1983) reported that low perceived control is associated with poor academic performance. Watkins (1984) argued that if students believe that they have control over their own learning, they are more like to deep approach. Perceived lack of control is likely to lead to the belief of learning as a memory task. It is hypothesized that for students to want to adopt deep learning needs confidence in their own academic ability and a conviction that they should not rely too much on the teacher but take responsibility for their own learning. It is predicted that an external locus of control should be correlated with surface learning.



The objective of this study was to examine the interplay between gender, learning approach, locus of control and academic performance among Hong Kong Chinese sub-degree and degree students.

## **Method**

### *Participants*

Research participants for this study were 128 associate degree students from Higher Diploma in Business of HKU SPACE and 122 self-financing business degree students of Open University of Hong Kong. The students' age ranged from 18 to 26 years with an average of 21 years old. All participants were studying in business major. Volunteer students were surveyed in class using a non-probabilistic sampling procedure. All measures were gathered in the classroom by researchers who clearly articulated the purpose and response choices of the measures to students.

### *Measures*

This study employed Biggs's Revised Two-Factor Study Process Questionnaire (R-SPQ-2F) to measure learning approach. The R-SPQ-2F is a self-report instrument composed of 20 items falling into four subscales. Participants rated themselves on a 5-point Likert scale ranging from 1 (low) to 5 (high). The four subscales are surface-motive, surface-strategy, deep-motive and deep-strategy. Examples of items from the R-SPQ-2F are (1) "My aim is to pass the course while doing as little work as possible." (surface motive) and (2) "I test myself on important topics until I understand them completely." (deep strategy). The two overall scales are surface and deep, with each scale being consisted of the motive and strategy subscales. Confirmatory factor analysis showed a good fit with the R-SPQ-2F by using Hong Kong tertiary students (Biggs, Kember, & Leung, 2001). It found that tertiary students' learning approaches could be interpreted in a hierarchical structure that has two second-order factors including deep and surface learning. The R-SPQ-2F score was used to identify deep learning approach and surface learning approach and GPA score was used as an index of academic performance.

The Revised Causal Dimension Scale (CDSII) was used to measure the locus of control. The participants decided on their perceived reasons for their academic success and failure in response to four various dimensions of causality which included locus of control, stability, personal control and external control using nine-point rating scales.

The Revised CDSII was developed by McAuley, Duncan and Russell (1992) so that the participant could directly indicate how he or she views underlying dimensions of their causes (Russell, 1982; Russell *et al.*, 1987). Confirmatory factor analyses were conducted to test the hypothesized factor structure and the results reported that the model fitted the data (McAuley *et al.*, 1992).

Grade Point Average (GPA) was utilized to examine academic performance. The course GPA is a weighted average of the GPAs for all compulsory subjects, which is measured on a scale from A (excellent) to F (fail), from the commencement of their study to the point at which the survey was conducted. These grades were converted to numbers for data analysis with higher numbers pointing to better grades (A = 5, B = 4, C = 3, D = 2, F = 1). The grade was calculated by averaging the percentages achieved in semester assessments. Students were assessed using a variety of methods such as examinations, continuous assessment, projects, presentations, essays. GPA was obtained by formulate approximately assigning an 'A' to students achieving final assessment percentages of 85% or above, a 'B' to students achieving final assessment percentage between 60% and 85%, a 'C' to students with final assessment percentage between 50% to 60%, a 'D' to students with final assessment percentage between 40% and 50% and 'F' to students with final percentage below 40%.

## **Data Analyses**

Hierarchical regression analysis was conducted on the data of the whole sample in order to test the predictability of academic performance. Table 1 outlines the results of the hierarchical regression analysis of community college students and Open University sub-degree students respectively. Results showed that GPA was significantly related with learning approach for community college students. Gender, and locus of control did not demonstrated significant regression coefficients.

The dummy variable to identify degree and community college students was significantly significant. Learning approach was significantly related with GPA for both students. Surprisingly, the result found no significant effects of gender and locus of control on academic performance. The results suggest that the deep approach is one of key variables affecting academic performance for both sub-degree and degree students.

Table 1. Summary of hierarchical regression analysis for variables relating with academic performance as dependent variable of community college and degree students

Variables	Beta	t	p
Gender	.112	1.836	.061
Locus of control	.062	.939	.066
Learning approach	.234	3.391	.069
Dummy	0.226	3.750	0.060

F (4, 246) = 4.931, p < 0.001  
 $R^2 = .143$       *Adjusted R*<sup>2</sup> = .138

## Discussion and Conclusion

This study's findings suggest that the influence of the deep approach on academic achievement appears to be modest for Hong Kong Chinese community college and university students. Gender and locus of control did not explain academic performance in our analysis, contrary to the hypotheses. It appears that both community college and university students are encouraged to use the deep approach with an aid of interactive teaching and learning environment in both institutions.

A number of variables, however, may affect the link between learning approaches and academic performance. First, a difference between assessment systems of two institutions is needed to be taken into account. Sternberg (1997) argued that the assessment format has a strong impact on how students approach their study. Second, learning approaches and academic performance may form a complex non-linear relationship rather than a direct correlation in different disciplines. The same student may adopt different learning approaches in response to different academic context. Previous studies (Lizzio, Wilson, & Simons, 2002; Trigwell, Ashwin, & Millan, 2013) argued that students were likely to adopt the surface approach rather than the deep approach due to a variety of factors such as didactic teaching, heavy workloads and learning environment. For example, in some circumstances, surface approach may be appropriate in response to assessment format by the educational institutions.

Ho and Hau (2008) suggested that GPA might not have adequately reflected the learning outcomes that students had achieved through the use of learning approach. Considering other variables known to explain academic performance such as self-efficacy (McKenzie & Schweitzer, 2001), learning environment (Entwistle & Peterson, 2004), and emotional intelligence (Austin, Evans, Goldwater & Potter, 2005) is required. Recent studies showed that other variables such as self-efficacy (Diseth, 2011; McKenzie & Schweitzer, 2001; Prat-Sala & Redford, 2010), personality (Furnham, Chamorro-Premuzic, & McDougall, 2003; Trigwell, Ashwin & Millan, 2013), learning context (Kember, Hong, Ho, & Ho, 2011) and culture environment (Sue & Okazaki, 1990) partly affected academic performance. For example, the level of cognitive ability appears to be more homogeneous and restricted in range in higher education. Asian students believe in a direct relationship between good higher education, better job prospect, and social advancement.

There are three limitations of this research. First, it conflates academic performance with learning outcome. Scouller & Prosser (1994) argued that high-quality learning outcome is not often the same as high academic performance. The quality of learning outcome can be low if the course assessment rewards high academic achievement by using surface approach. It, however, may not be true in the context of this study, where the course assessment encourages the deep approach in community colleges. Second, no other measures are used to examine that the way students replied to the questionnaires is reflective of how they actually behave. Qualitative methods may reveal insights into the relationship between learning approach and academic performance in this context. Third, the study is limited by the sample size. Larger samples of students are drawn from a wider range of disciplines in different community colleges may shed further light on the relationship between locus of control, learning approaches and academic performance.

Offering high quality support services in higher education institutions is important in order to enhance students' chances of scholastic success. This study suggests that lecturers might help their students to enhance learning by cultivating the use of deep approach. Teachers and counsellors can help students develop more diligent study habits.

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# **Reconceptualizing analytics in education: A quest for a common ground**

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## **Abstract**

Maturing big data techniques have made it feasible to transform massive volume of unstructured data into meaningful patterns that capture, model and predict behaviours of diverse target groups. In educational settings, analytics has been increasingly used since the past decade. Terms like learning analytics (LA) and academic analytics (AA) have been adopted to describe various levels and functions of analytics in academia. A number of frameworks, not necessarily conflicting, have also been proposed to classify the wide range of analytics in the education sector. Nevertheless, there is little consensus on how these types of analytics are to be defined and categorized. This paper, in search of a common ground that can bridge the different ideas of scholars, proposes an integrated framework that reorganizes and elaborates on the existing classifications of analytics in education that has been dominated by two rather confusing terms—LA and AA. The proposed framework reconceptualises AA and LA, and elaborates on their three operational levels (micro-, meso- and macro-levels) and six functioning scopes (learner, course, departmental, institutional, regional and national and international level). Findings at each level can be used to generate descriptive and predictive reports that can facilitate effective decision-making of institutions. The proposed framework will be useful for people to understand this new domain, and decide their levels of application and carry out further study.

## **Keywords**

Analytics, learning analytics, academic analytics, predictive analytics, framework

## **Introduction**

With the use of evidentiary methods and high technology tools, analytics has provided educational institutions with a lens to understand how they have been performing and what are happening. Analytics in education empowers educators to make decisions that can improve learners' learning experience, institution's administration and operations, and in an ideal sense, the practices in academia. Since this domain of practices is still in an early stage of development, its underlying potential has yet to be fully unleashed (Goldstein & Katz, 2005; Baer & Campbell, 2012;

Siemens 2012).

Analytics in education can be understood as the analysis of a huge quantity of data, through big data techniques, to enhance students' and institutional performance. Big data refers to sizable data that are loosely organized or acquired from many different sources which can hardly be managed by traditional databases (Davenport, 2013). What comes together with this explosion of data is the advancement of various computational techniques for collecting, managing and analyzing massive amounts of data (Wagner & Ice, 2012). Big data techniques<sup>1</sup> have the potential to capture and analyze the behaviours of entire population rather than a small sampling group (Clow, 2013).

### **Development of Analytics in Education**

The application of analytics in education has been driven and facilitated under a variety of circumstances. Clow (2013) highlights the growing emphasis towards performance management and the use of quantitative metrics in academia. The creation of learning management systems (LMS) and the emergence of virtual learning environment (VLE) also make a large volume of data about learners' learning behaviours available for analysis. Together with the maturing big data techniques, interpretation of this massive amount of data has been made feasible.

Goldstein and Katz (2005) introduce the term academic analytics<sup>2</sup> (AA) to describe the application of big data techniques in the education sector. Another term "learning analytics" (LA) came into use in 2009 to describe the application of analytics in improving teaching and learning (Bienkowski, Feng, & Means, 2012). Though LA tends to be utilized in only analyses of learning behaviours, little consensus has been reached in defining analytics-oriented terms used in academia. AA and LA have been defined in various scopes at diverse operational levels. Like Campbell, DeBlois and Oblinger (2007), some restrict the focus of AA to the areas of teaching, learning and student success. Others, such as Goldstein and Katz (2005), Douglas (2012) and Ferreira and Andrade (2014), define AA as something similar to business analytics, which centres on the performance of institutions in all aspects. Long and Siemens (2011), being more specific, identify three operational levels of AA (institutional, regional, and national and international levels) to illustrate its scale of use.

With less controversy, LA is believed to be learner-oriented which specifically focuses on pedagogical issues. One can find similar definitions in the works of Barneveld, Arnold and Campbell (2012), Cooper (2012), Siemens and Baker (2012) and

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<sup>1</sup> The use of analytics is by no means a practice restricted to the education field; similar technology and techniques are also applied in the business sector and other industries (Wagner & Ice, 2012; Clow, 2013).

<sup>2</sup> The term academic analytics was first used by WebCT (Goldstein & Katz, 2005).

Clow (2013). Works by Moore (2005) and Johnson, Smith, Willis, Levine and Haywood (2011) argue that LA, other than assessing students' learning effectiveness, can be used to measure the competence of institutions in academic aspect. Evidently, there is no common agreement on the nature and functions of AA and LA.

Despite the fact that there are discrepancies between existing definitions on AA and LA, these two types of analytics remain to be the basic classifications adopted by literature to differentiate the varied scopes and functions of analytics in education. In this paper, AA will be defined as the extensive use of data and business intelligence (BI) tools to measure the effectiveness of institutional management (including, but not limited to, teaching and learning) (Goldstein & Katz, 2005; Barneveld, Arnold, & Campbell, 2012). For LA, this paper adopts the commonly cited definition offered in the 1st International Conference on Learning Analytics — learning analytics is “the measurement, collection, analysis, and reporting of data about learners and their contexts, for the purposes of understanding and optimizing learning and the environments in which it occurs” (About, 2010).

### **Classifications of analytics in education**

A number of frameworks have been proposed to break down analytics in education into levels, or to represent the relationship and interaction between AA and LA (Long & Siemens 2011; Buckingham Shum, 2012). For instance, Long and Siemens (2011) classify analytics in education into two types (LA and AA) according to their coverage scale (course-, departmental, institutional, regional and national and international level). Buckingham Shum (2012) proposed a framework that defines LA into micro-, meso- and macro-levels analytics. In this conceptual frame, micro-level analytics focuses on individual user actions (and hence individual cohorts of students); meso-level analytics specializes in institutional level (and could serve as a tool for managing the business of an institution); and macro-level analytics incorporates data from a geographical region (covering data generated from different institutions), which is facilitated by the data integration and benchmarking methodologies practised in non-educational sectors (Buckingham Shum, 2012). Barneveld, Arnold and Campbell (2012) propose a conceptual model that illustrated the relationship of LA, AA and predictive analytics. In this model, LA specializes in enhancing learning effectiveness; AA looks into the performance of education institutions in a business setting; while predictive analytics focuses on forecasting and informed decision making (Barneveld, Arnold & Campbell, 2012).

With insights from the above studies, an integrated framework can be construed by editing, reorganizing and elaborating on the existing classifications of analytics in

education. As shown in Figure 1, this framework illustrates that analytics can operate at six scopes (learner, course, departmental, institutional, regional, and national and international levels), perform analysis at three levels (micro-, meso- and macro-levels) and systematically be classified into two types (LA and AA). The scopes and levels can be defined at an increasing scale, from the bottom to the top of the framework.

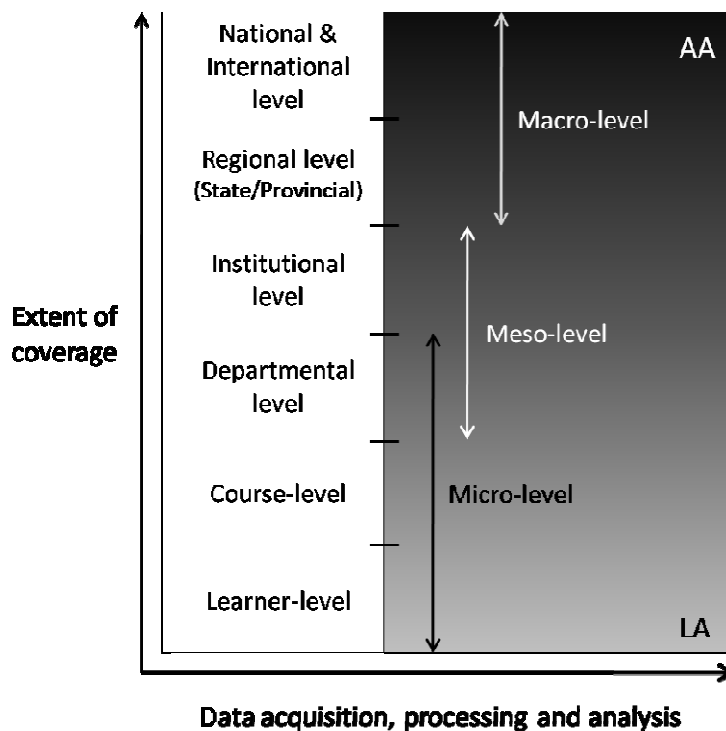


Figure 1: Extent of coverage of analytics in education

Analytics in education operating at different levels may serve diverse interest groups and have distinctive functions. Hence, it is important to understand the distinctive roles and function of analytics at each level. As shown in the figure, the extent of coverage of analytics in education can be defined from the smallest scale (personal or individual learner level) to the broadest (international level). The figure also illustrates the analytical process of data acquisition, processing and analysis. This proposed framework will be explained below.

Analytics operating at learner-level focuses on individual learning performance and efficiency (Siemens et. al, 2011). Course-level analytics emphasizes conceptual development, learning progress and performance of the cohort of students (Long & Siemens, 2011). Departmental level analytics, performing micro-level analysis, facilitate educators to trace students' patterns of success/failure and evaluates operational excellence of programmes (Moore, 2005; Johnson, Smith, Willis, Levine, & Haywood, 2011).

Analytics operating at these three scopes perform micro-level analysis, which generate information most useful to learners and those who are responsible for their academic performance (Brown, 2011; Buckingham Shum, 2012). Analysis performed at this level tracks and interprets data that are associated with students' learning, aiming to capture, understand and intervene into the learning behaviours of students. Object of analysis can be discourse and "intelligent curriculum" implemented in the course, learning environment, learning goals and habits of students, and students' utilization of learning resources (Moore, 2005; Johnson et. al, 2011; Siemens et. al, 2011). Hence, analytics at these levels are regarded as LA, which specifically emphasizes the optimization of learning environment and student's performance (Brown, 2011).

As shown in Figure 1, analytics operating at departmental level can perform both micro- and meso-levels analysis. Since educational institutions are engaged in the business of delivering learning; learning effectiveness to them is not merely a learning measure, but also a business measure (Moore, 2005). Depending on how the findings are used and what purposes they serve — to improve the academic performance of students or that of the institution — decide the operating scope of departmental analytics. Therefore, departmental level analytics, other than providing valuable insights to learners and teaching staff, can also be valuable information to departments and faculties in decision-making processes (Siemens et. al., 2011). For example, departmental level analytics could offer information about the usage of certain learning tools or materials, which could tell the cost-effectiveness of the learning tools/materials by incorporating costing information into the analysis. It could also tell how well individual staff has performed by comparing learning behaviour patterns as well as performance data of learners.

Institutional level analytics could be used to evaluate the productivity of various units and teams. It generates details for capturing the institution's strengths and weaknesses; thus marketing units, administrators, and funders of the institutions may find analytics at this level helpful (Siemens et. al., 2011; Buckingham Shum, 2012).

Analytics at departmental and institutional level can perform meso-level analysis. Meso-level analysis serves a greater interest than the analysis at micro-level, and thus requires data that extend beyond student's academic profiles. Student size that the institution serves, scholarly accomplishment and ranking of the institution are some of the institutional data that meso-level analytics may need (Douglas, 2012). Financial data of the institution can also be an object of analysis, such as the institution's expenditures on facilities, research, staff and students, and the amount of investment, funding and aid it receives (Campbell & Oblinger, 2007; Douglas, 2012). Availability and utilization of institutional resources (e.g. library resources, instructional resources and information

technology) may also be measured.

Regional level (state/provincial) analytics focuses on systems comparison, quality control and standard setting; local governments and policymakers may need these kinds of data when forming new policies (Siemens et. al., 2011). National and international level analytics may target at improving nation-wide (or even worldwide) quality of education. This level of analytics requires cross-national collaborative efforts and operates at a much larger scope. League tables, national governments and international organizations such as UNESCO and OECD may make use of analytics at this level (Siemens et. al., 2011).

Analytics at regional level or above carry out macro-level analysis. Cross-institutional information, longitudinal data or data with state-wide sampling size (or beyond) are possible objects of analysis (Buckingham Shum, 2012). Analytics that perform analysis at meso- and macro-levels are perceived as AA, since their primary goal is to evaluate the performance of institutions, and in an extended sense, the academia. In addition, datasets collected at meso- and macro-levels, instead of focusing on the activities of individual learners, look into that of departments, faculties, institutions or even nations.

The proposed framework has not clearly demarcated the coverage of AA and LA since their borderline is by nature obscure. For instance, administrators may use analytics to align their teaching and learning approaches with the institution's business goals; in this case, it would be hard to say whether it is the application of AA or LA. There is one important thing to be noted — analytics at different levels and scopes interact with and enrich each other and function as a cohesive system. For instance, data generated at low levels may provide high levels analytics with finer-grained details (Buckingham Shum, 2012). This explains why the borderlines between different types, levels and scopes of analytics are not always clear-cut and may sometimes converge.

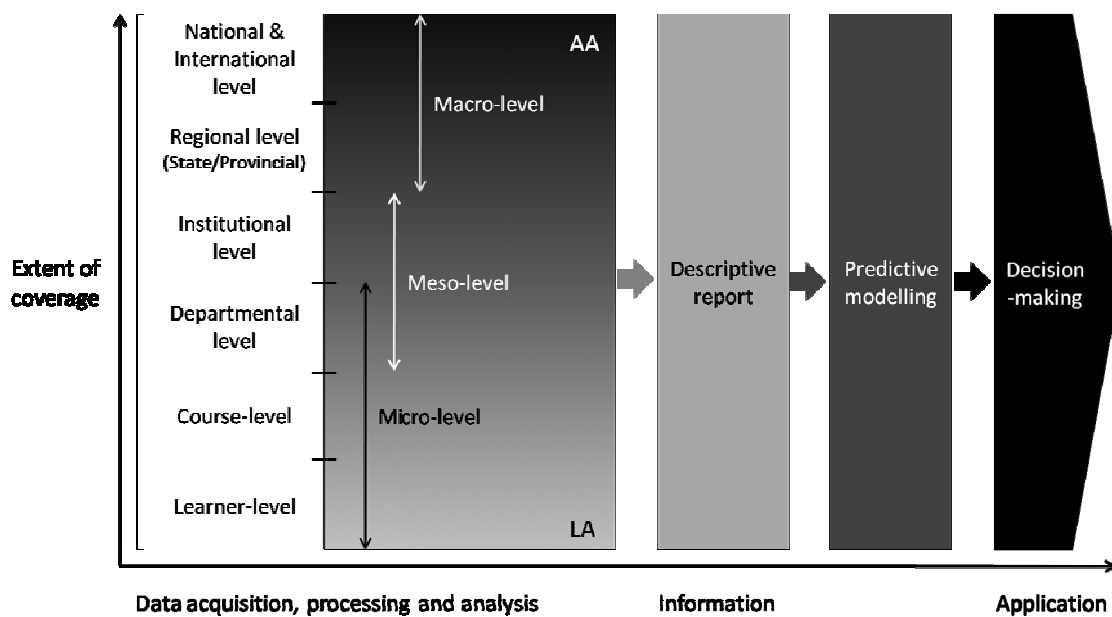


Figure 2: Use of analytics in education

Other than illustrating the extent of coverage of analytics in education, this framework, as shown in Figure 2, has integrated the outcomes of analytics endeavours, including the production of descriptive reports, predictive reports and as well as information for decision-making.

Learning analytics and academic analytics go through the process of data acquisition, processing and analysis to generate information that is descriptive and/or predictive. Analytics can be descriptive in the sense that it identifies what have happened in the past, helps to produce ad hoc reports and spots potential issues (Davenport, 2013). Going a step further, users can use past models to predict future (Eckerson, 2007). Variables identified in the descriptive report will provide researchers with the foundation to test a particular dependent variable and form predictive modelling (Davenport, 2013). All these efforts are motivated towards the same goal — application, in other words, to drive decision-making processes.

## Discussion

Analytics has been increasingly utilized in the academic field; perceivably an increasing number of researches will be exploring this domain of practices. Nevertheless, there is little consensus on how various types of analytics are to be defined. For communication and comparison of results, it is necessary to have a framework that establishes a common language on the topic to ensure accuracy in the exchange of ideas and concept building (Barneveld, Arnold, & Campbell, 2012; Ferreira, & Andrade, 2014). The framework proposed in this paper can be used as a reference to decide which levels and scopes of analytics a study applies, to whom it should have

effects on, and what terminologies could be used when works are to be transformed into words. Institutions, with this framework, can also identify potential of further development.

Take the Course Signals project of Purdue University as an example, the project develops a student success system that provides real-time feedback to each student in the course by predictive modelling (Arnold & Pistilli, 2012). The predictive model was set up based on four dimensions of data collected — student's up-to-date performance in the course, effort spent (defined by their activities in Blackboard Vista and Purdue's LMS), past academic records and demographic characteristics (Arnold & Pistilli, 2012). Signals with different colours will be sent to the student indicating his/her predicted performance in the course, with red light signalling high chance of failure, yellow light denoting potential problems of succeeding and green light reflecting high chance of success (Clow, 2013). Other than posting signal lights, instructors may also intervene by sending the students email or text messages, calling face-to-face meetings and referring him/her to academic advisors (Clow, 2013). The project had increased student success in individual courses and student retention to the University (Arnold & Pistilli, 2012). Referring to the framework proposed in this paper, we can see that the project is an application of learning analytics, which specifically focus on individual (and hence the cohort's) learning performance and effectiveness. It goes through learner- and course-levels processing and performs micro-level analysis. Predictive models, translated into course signals, were used in the project to drive decision-making process (i.e. interventions done to improve student's performance).

In addition, this framework manifests the interactive relationships that exist between different levels of analytics. It reveals the blurred borderline of AA and LA caused by the special nature of education institutions as a business of delivering knowledge. It also illustrates how analytics produced in various scopes can be aggregated and add power to each other (Buckingham Shum, 2012).

With this framework, one can easily spot out who the stakeholders are in this new domain of practices. Analytics will play an important role in education in the future since it will be useful in many areas such as the evaluation of pedagogy, curriculum planning and improvement of student support services. Its scopes of influence do not only limited to learners and institutions, but may also reach national governments or even the world. Analytics in education illustrates the relationship between structure and action by providing people the insight to understand how educational system constructs various stakeholders and how these stakeholders realize and transform the system.



## Concluding remarks

Instead of duplicating the “one-size-fits-all” learning experience, analytics allows agents to tailor their approach to education. In education, it has been considered “one of the technological advances that will bring learning onto the next higher level” (Griller & Drachsler, 2012, p. 54). As a new landscape in academia, analytics is still, to a large extent, in its embryonic stage of development. Numerous terms have been introduced to describe the activities in this emerging field, but consensus on the definitions of these terms are yet to be reached. Ambiguous meanings are a barrier to development in the field. For this reason, this paper, by bridging the ideas brought forth by scholars in the field, has attempted to establish a common ground for communication in this domain.

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# **Instructional technology from the perspective of cultural historical activity theory: A case study of a video-conferencing system in an open and distance university**

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## Abstracts

This study analyzed the process and the results of the introduction and dissemination of innovative instructional media from the perspective of Cultural Historical Activity Theory (CHAT). To the end, a case of the video conferencing system in a large scale open university in Korea was explored, and Engeström's (1987) activity system model was employed as a theoretical frame. Data sources were 1) transcripts of the interviews with five lecturers who had experiences of using the system and three system administrators, 2) official reports of the university on the statistics of students' usages and satisfaction on the system, and 3) related documents such as reports on the university policies. The researchers, first, described the current status of the system, second, analyzed the students' and teachers' needs on it, third, identified the elements of the activity system of using the instructional technology, and, forth, analyzed the tension or contradiction within an activity system or between neighbor systems.

As a result, we could describe the elements constituting the activity system: instructor (subject), distance students (object), video conferencing system (tool), instructor, students, design and development team (community), formal/informal norms and underling culture of the institution (rules), and assigned roles such as classroom management, problem shooting as well as teaching and learning (divisions of labor). In addition to that, the double binds and tensions among the elements, for example, using interactive media based on one-way lecture scheme, were identified.

**Keywords:** Instructional Media, Activity Theory, Activity System, Video-Conferencing, Distance Education

## Introduction

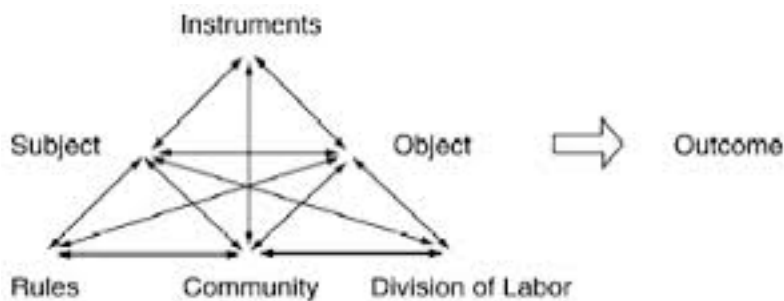
It is one of the underlying interests of educational researchers to maximize pedagogical impact with the introduction of new media. To those who support the introduction and spread of innovative media, this notion accompanies the following two basic assumptions. First, new functions of innovative media will ultimately enhance the educational practices. Second, though the intended effect does not appear instantaneously, subjects will slowly familiarize themselves to new media and eventually see real long-term instructional improvement. Their assumption, in the broadest sense, is supported by technology determinism, which asserts that new technological factors dictate practice of teaching and learning.

However, it has been doubted whether the introduction and use of instructional media is as effective as it is expected to be, because the incorporation of new instructional media into educational practices has been drawing much criticism so far, especially in Korea, ranging from 'Edunet' a comprehensive educational information service in the mid 1990s to the most recent 'smart education project' by the Korean educational ministry. Though there can be different opinions, skepticism seems to predominate in the assessment of whether the current educational environment is innovative as new media intended. The United States is no exception. Cuban (2001) evaluated the supply of computers in the classroom as the "oversold and underused". When innovative media is introduced to the existing practical teaching, unexpected consequences occur in contrary to the original intention and direction, which in turn makes an assumption that this unexpected outcome is only natural.

Therefore, this study was aimed to discuss the tensions and dynamics resulted from the incorporation of new media. To this end, cultural-history activity theory (hereforth referred to as activity theory), especially Engeström's activity system model, was used for theoretical framework and the video-conferencing instructional system of a Korean open university was analyzed for a case study.

## Activity System and Contradictions

Engeström (1987) proposed an activity system model. Activity starts from a subject intending to realize his or her needs. However, the desire is not abstract, separated from the outside concrete world but is something that is always connected to objects from the outside, at least within an activity system. According to Vygotsky (1978), a person with higher mental functions does not directly interact with the world even when he or she either is at the early stage of language or symbolic learning, but always through cultural tools such as language. Moreover, human activity is deeply ingrained in rules, division of labor and community.



[Figure 1] Activity System Model (Engeström, 2001, p. 135)

There are tensions and contradictions between elements that constitute an activity system and other surrounding systems. Because of them, the activity system is always exposed to change and dynamism. Engeström (1987) divided the source of contradictions into four types. First, it is a primary contradiction which is present in each and every element. For instance, it is a primary contradiction if a lecturer's desire of enriching his or her lecture contents and activities is caught up with his or her desire to minimize and go easy on the workload. Second, it is a secondary contradiction which pervades between a tool and a subject. For example, a classroom is equipped with an IPTV but a lecturer is not familiar with how to use it. This can be a contradiction that exists between elements. Third, it is a tertiary contradiction which arises between the existing system and a new system. The following situation can fit the description of a tertiary contradiction. There is much effort to introduce and implement collaborative learning strategies, yet problems occur because all elements such as lecturers, students and related policies are only compatible with the existing system. Fourth, it is a quaternary contradiction which occurs among surrounding systems. A situation where a school wants to offer training on how to make a PowerPoint presentation but

does not have adequate facilities to offer one is a case in point.

## **Case Study of the Instructional System of Video-Conferencing in a Korean Open University**

### **A Brief Description of the Context**

A video-conferencing instructional system was first introduced to the university as a part of Knorean National Information Infrastructure Project in the latter half of 1995. In the early stage of the project, the system was connected to 14 sites: the university headquarters, regional campuses and one learning center, but now it has been connected to 19 sites. A maximum of 1100 people can simultaneously access to the system. However, with regard to the type and size of VCLs (VCL), a number of departments that utilize the system has declined from 15~18 between 1996 and 2005 to around 10 since 2006, and only small sized departments with fewer students offer VCLs. Though the university witnessed large variations from year to year in the number of students who took part in the VCLs, an average number of students that took the VCLs remained under 10,000 persons. In addition, at first the video-conferencing instructional system was widely used in various university events such as special lectures and video-conferencing meetings but it is now mainly used in alternating offline in-class lectures.

Supports for VCLs is shared among the registrar's office, administrative section, regional campuses and Digital Media Center. The process of making a VCL is largely divided into four stages, along with the respective responsibilities. First of all, the registrar's office decides which courses will offer VCLs for upcoming academic programs. To this end, regional campuses informs departments whose VCL participants were less than ten persons in the previous semester and for which they have difficulty in securing lecturers for VCLs. On the basis of this information, departments hand over a list of lecturers for and venues for VCLs to the administrative section. Then, the administrative section makes a schedule for VCLs and informs regional campuses of the schedule, and each regional campus establishes its own action plan to carry out VCLs. A person in charge of VCLs in a regional campus is required to maintain a lecture hall and equipment for VCLs clean and up-to-date while following through on the action plan. During a lecture, he or she should monitor both a lecturer and students in terms of lecture contents and learner characteristics, and at the same time, they are required to adjust cameras and respond to any technical breakdowns. After

a lecture, they should clean up the lecture hall and report a number of VCL participants. The responsibilities may differ from region to region; nonetheless, the role they play in supporting the video-conferencing instructional system differs greatly, depending on a lecturer's awareness of their role.

Lastly, the video-conferencing instructional system of the university is aimed at overcoming the limitations of online education, increasing face-to-face educational interactions and forming a sense of unity and belonging for distance university students. However, the student attendance of VCLs is steadily declining every year, and what's more, student satisfaction with lecture management, conditions and contents and its relevance with offline tests and efficiency paled beside that of offline lectures. The main reasons for the low satisfaction were that it lacked a sense of realism (27%) and interactions between students and a lecturer (21%) and unnatural lecture management (15%) (Park & Nam, 2012). The result shows that despite apparent benefits of a video-conferencing instructional system: being able to take a lecture in a place of one's choice and having ample interactions, the system does not reflect these merits fully.

### **Analysis of Ideal Activity System**

When the university first decided to adopt the video-conferencing instructional system to offline lecture, it expected that it might bring about sort of opposition and problems but it hoped to ultimately enhance the educational quality and satisfy the desires of relevant subjects. Although it was not expressly mentioned in any official document of the university, one can assume that such ideal activity system must have been highly hoped for.

First, an activity subject can use new tools skillfully and thereby is able to maximize the instructional impact with the tools. This indicates the resolution of a conflict which was between the subject's desires of wanting to teach well and meeting the teaching requirements, with a minimum effort.

Moreover, the objects of a lecture seem to show a high level of satisfaction as they get accustomed to lecture conditions on a video-conferencing instructional system. As a result, they are deemed active students. They take part in a wide range of new instructional activities with enthusiasm and



vigor and are able to frankly and boldly interact with their peers and instructors when needed.

The video-conferencing instructional system runs with a hitch on any hardware and software. Furthermore, as it combines with instructional strategies such as discussion, debate and collaborative learning which utilizes the system appropriately, it is optimally employed in diverse instructional methods of lecturers.

A system for the registrar's office and administrative section can offer relevant support for video-conferencing instructional activity. In addition, a culture of tolerant education will be established which is open and allows students to actively take part in and raise questions about lectures, even though the questions have little relevance to the lecture in hand, unlike the existing educational culture which is largely controlled by lecturers. Finally, there will be an optimal division of labor in order to handle new media and deliver various lecture types, which are resulted from the introduction of new media, and subjects will cooperate productively.

### **Analysis of Real Activity System**

According to data collected from interviews with lecturers and system administrators, student surveys and other statistical resources, the video-conferencing instructional system was found to be very different from the aforementioned ideal activity system. First of all, lecturers who were interviewed appeared to be quite reluctant about giving VCLs and some of them went as far as to say they would rather like to avoid them all together. By university regulations they are required to give a certain number of VCLs but they are not sure about the quality of their lectures and troubled by their own assessment of their VCLs being inferior to their face-to-face lectures. Since these lectures require a new teaching style, they ought to find appropriate teaching methods but they find themselves snowed under with too much work and unable to find time and put effort into it.

Students who are the objects of this activity are the same. They come to a VCL, expecting that it would be like a face-to-face lecture so they find it quite similar to a video lecture. There are about 2–3 students at least or 6–7 students at most, attending VCLs at regional campuses. Nevertheless, on the screen, they appear to be very passive throughout a lecture and do not respond to any questions a lecturer asks them. They do not give out any feedback of how they like the lecture.

Though it has been 15 years already since the system was introduced, lecturers are not still good at using every function of the system as they use it only twice or thrice per semester. However most of all, a psychological tool which can guide the utilization of media is still stuck in the old instruction. Hence, the video-conferencing instructional system has been reduced to a mere lecture aid in spite of its useful functionality.

Even the university rules and lecture guidelines cannot effectively support the entire activity. Although it is apparent that lecturers need to make efforts into making and implementing new teaching strategies, their limited teaching hours do not make enough room for them to do so. Therefore, both lecturers and students still remain in the culture of large lecture halls and are unable to create a freer and more dynamic learning environment.

The lecturers who were interviewed wanted the video-conferencing instructional system administrators to play a more active role in a lecture and give more support, whereas the system administrators who have expertise in system maintenance viewed their responsibilities rather differently from those of the lecturers.

### **Examples of Contradiction**

As the introduction of new media did not create the intended ideal system but generated a different outcome, there occurred various contradictions. Firstly, it is a primary contradiction that exists within an element. For example, there exists a contradiction between instructional media and psychological schemas that push subjects to use the media. The video-conferencing instructional system can be utilized in various ways and could be better put to use if it were not used by the university headquarters to deliver a centralized lecture but by students that live in different regions to interact with one another. However, such possibility dies out in a lecturer-centered instructional strategy. Then, a VCL will settle for the second best option.

Secondly, it is a secondary contradiction between elements. A gap between a lecturer's expectation and learners' performance can be a case in point. Lecturers keep face-to-face lecture conditions in mind when they prepare a VCL, so they try to imagine students' reaction and adjust the speed and tone of their voice and gestures accordingly. However to students, lecturers that appear on the VCL

screen do not seem any different from lecturers of video lectures. Therefore, they do not recognize VCLrs as people with whom they should interact and do not provide any feedback at which the lecturers become flustered and troubled.

Thirdly, it is a tertiary contradiction between a general system and an innovative system. As has been pointed out earlier, a contradiction occurs between the instructional method which both lecturers and students are accustomed to and various instructional methods which come with the video-conferencing instructional system. The lecturers that were interviewed appeared to recognize a need that VCLs should be different from the existing teaching method, nonetheless, they were reluctant to make necessary efforts to break from the convention. In addition, since many rules and duties are still focused on the existing system, it is difficult to put a new system in place.

Lastly, it is a quaternary contradiction. A case in point is a contradiction existing between a lecturer-centered instructional system and an instructional support system. When new media is introduced, a task of acquiring new techniques, knowledge and competence which is usually required of lecturers is not only limited to them alone in the context of a distance university, because it requires cooperation from support organizations that design and develop lectures. However, the lecturers that were interviewed said that they had received neither any training nor systematic support.

### **Conclusion**

When innovative technology is introduced, it is often assumed that where there is new technology, innovation will follow. Nevertheless, given the aforementioned case study, the video-conferencing instructional system is on a different path from what was once envisioned, due to the dynamics within and/or the activity system(s). The Activity Theoretical framework could afford a perspective that can conceive the systemic tensions and dynamics as a whole, and, consequently, understand the reciprocal co-influencing processes between the new, innovative media and the old, conservative practice. To make the innovation that a new media is expected to bring about actually realized, what we need is not the new apparatus of the technology separated from the context, but the cultural practice that is overarching the innovation, human intention, and all the factors consisting of the activity system,.

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# Prototyping a conceptual model for real-time online facilitation of mathematics

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## *Abstract*

*Online learning which at one time was subservient to traditional learning has now become the preferred choice of learning to many adult learners who do not want their learning to be constrained by time and place. Some educators are however skeptical as to how could subjects like mathematics that require both conceptual understanding and procedural knowledge be learned effectively in an online learning environment. Some of the mathematical processes may be confusing to learners unless visualization of the mathematical processes is made possible. Furthermore, some online mathematics learners may wish to receive guidance in a face-to-face manner when the need arises. The key question is: can these be made possible in the online environment? In this paper, the author compares and contrasts contemporary online learning with traditional mathematics instruction. Based on the analysis and synthesis, the author identifies the necessary elements for effective online learning of mathematics. Following that, the author proposes a conceptual model of an effective online learning system for guided learning of mathematics. A prototype of the system is presented to illustrate how real-time remote facilitation of learning that mimics face-to-face guidance is made possible in online learning environment.*

**Keywords:** online, mathematics, visualisation, real-time facilitation, interactivity

## Introduction

The advancement of the internet and web-based technology has made it possible for learners to view teaching and learning from a different perspective. In the past, teaching and learning was often associated with face-to-face exposition by a teacher to a particular group of students in a fixed locality (such as a classroom) and at particular (pre-scheduled) time. Today, this is not necessarily the case. Many open and distance learning (ODL) institutions capitalize on the great capability of information and communication technology (ICT) to transform learning from the traditional mode to various ODL modes. As an example, Open University Malaysia (OUM), the largest ODL provider in Malaysia, adopts the blended mode to provide learning. OUM learners who are so vastly distributed in and outside the country carry out their learning via three different ways, face-to-face facilitation, online learning via myVLE, OUM's proprietary online learning system, and self-learning with the HTML modules or the print modules. Due to the limited number of face-to-face facilitations, learners are expected to be able to carry out independent learning using myVLE.

From management viewpoint, the use of online learning management system to facilitate self-managed learning reduces the cost in administering a programme. It also frees learners from the constraints of time and place. With adequate online learning system support, learners may now carry out learning at any place and at any time. Nevertheless, educators are generally more concerned with the issue of effective learning in online learning environment. It is interesting to explore what kind of instructional design and learning systems or tools that will support effective learning? It appears that many instructors of online instruction prefer the adoption of the more constructivist learner-centered approach in the design and delivery of online courses. Chen (2007) nevertheless pointed out that in order to achieve effective learner-centered learning, appropriate scaffolding as well as monitoring and coaching of the learners by the instructor is important and necessary. This is especially true with the learning of subjects like mathematics which usually involves the process of understanding, visualizing and practicing. Furthermore, the assessment of some area of mathematics needs to be based on the learning process and not just by looking at the product of learning. There are also many areas of mathematics where learning requires step-by-step guidance. The question that arises is: can learning of mathematics be conducted effectively in an online mode by just providing digital online modules that have interactivity confined to just non-linear learning paths and learner-content interactivity?

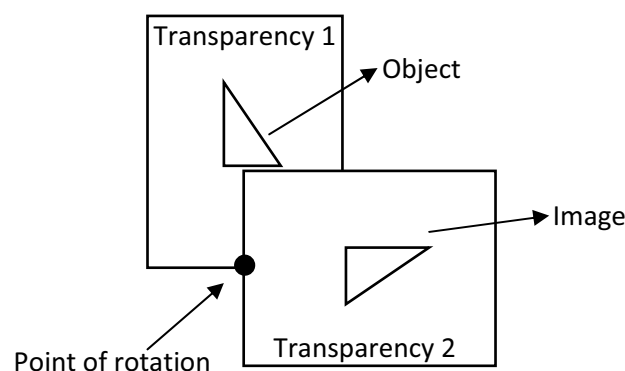
This paper discusses some of the essential elements for effective learning of mathematics. The areas of inadequacy of current learning system in relation to online learning of mathematics are identified. Following that, the author proposes a conceptual model for effective online learning of mathematics. A prototype of the model is also presented to illustrate the functionality of the proposed model.

## Elements for Effective Learning of Mathematics

The teaching and learning of mathematics need to encompass two important aspects, the mastery of conceptual knowledge and the procedural knowledge (Isleyen & Isik, 2003, Rittle-Johnson, Siegler & Alibali, 2011). The conceptual knowledge focuses on understanding of abstract mathematical concepts, relationships and connections whereas the procedural knowledge focuses on rules, algorithms and mathematical steps which are normally built upon symbolic representations (Lim, 2008). Currently, the instructional practices in the mathematics classroom still appear to be very much expository. It has been observed that mathematics teachers generally employ the following somewhat rigid 4-step standard procedure in conducting their mathematics lesson:

- i. The teacher explains the concepts, rules and algorithms related to the mathematics topic taught
- ii. The teacher selects a number of standard questions and shows the step-by-step procedure in answering each of the question
- iii. The teacher gives classroom or take home exercises which are similar to the standard questions
- iv. The teacher shows the step-by-step solution to question in the given exercises that many students fail to answer

Mathematics concepts are often abstract and difficult to teach as well as to learn. Some of the mathematics concepts such as the concept of rotation are probably best taught by allowing learners to visualize the actual transformational process. In the past when teachers rely very much on the use of concrete objects to help in explaining concepts, it was rather difficult for learners to visualize the actual process such as the process of rotation. A common way for a teacher to illustrate rotation is to draw objects on two transparencies, and then rotate one of the transparencies to show the position and the orientation of the object before (1<sup>st</sup> transparency) and its image after (2<sup>nd</sup> transparency) the rotation (Figure 1). Such method has limitation in that the students are not able to visualize the actual path of rotation.



**Figure 1: Traditional use of Transparencies to illustrate Rotation in Mathematics**

Understanding mathematical concepts and their connections with rules and algorithms facilitate learners' learning of the procedural knowledge and skills. But in order to achieve mastery of knowledge and skills, learners need to learn by constantly practicing and doing, and not just by reading and understanding. In the case of learning in a self-managed learning environment, the learning tool should be in the form of a microworld that provides high level interactivity that enables learning through exploring, practicing and discovering. The whole learning process should be learner-controlled rather than having the learner as a passive recipient of information. Such learning is certainly in line with the notion of constructivism.

Drijvers (2012) identifies three factors that promote or hinder the successful integration of digital technology in mathematics education: the design, the role of the teacher, and the educational context. When referring to the second factor, he posits that the use of digital tools for exploratory learning of mathematics is not self-evident because it is difficult for learners to "see" the mathematics without guidance. He emphasizes the need for the teacher to orchestrate learning. It appears that Drijvers view is in line with our view that guided learning activity is indeed necessary for mathematics learning as it enables the facilitator to "see" what the learners don't so as to provide immediate remedial support.

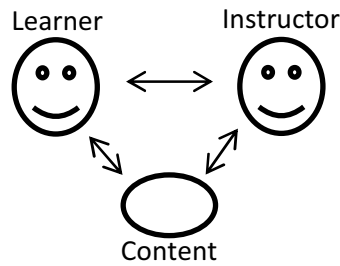
myVLE is OUM's proprietary learning management system. The system serves as a platform for learners to access and retrieve learning materials and information related to learning, carry out online learning and be involved in asynchronous online discussion. The digital online modules are learning modules in HTML format which are converted from existing print modules. The HTML modules are aimed at allowing learning to be carried out in a non-linear and interactive manner. Lim, Widad, Woo, Safiah & Hanin (2011) conducted a study to evaluate OUM's digital online modules from the theoretical and practical perspectives. The research indicated that the HTML modules represent a better learning tool as compared to the traditional print modules. However some areas that need improvements have been identified. One possible factor that may hinder effective learning of mathematics is that the current HTML modules do not have the functionality for the facilitator to "view" in real-time how the learner "does his mathematics". To be more specific, when the learner is using the module to learn mathematics, he is not able to demonstrate his learning by "showing" the facilitator what he is doing in a step-by-step manner. As such, the facilitator is not able to "observe", "identify" and "correct" his mistakes, if there is any.

### **Interactivity for Online Learning System**

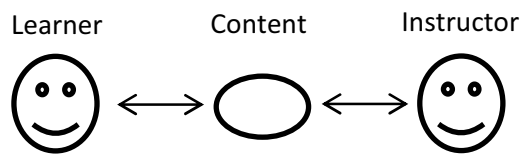
The concepts of interactivity associated with computer-based learning have been examined by various educators from various perspectives (Sims, 1995, Kirsh, 1997, Ali & Richardson, 2012). In fact, the notion of interactivity appears to be evolving as web-



based technology continuous to advance. Nevertheless, the general conceptions of computer-based interactivity appear to focus on learner-learner, learner content, and instructor-content interactivity (Figure 2). There appears to be little effort by learning institutions or educators to produce learning systems or tools to elevate interactivity to that of learner-content-facilitator interactivity (Figure 3).



**Figure 2: Learner-Content, Instructor-Content, Learner-Instructor Interactivity**



**Figure 3: Learner-Content-Instructor Interactivity**

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In defining interactivity for the purpose of distance learning, Yacci (2000) identifies four major attributes of interactivity:

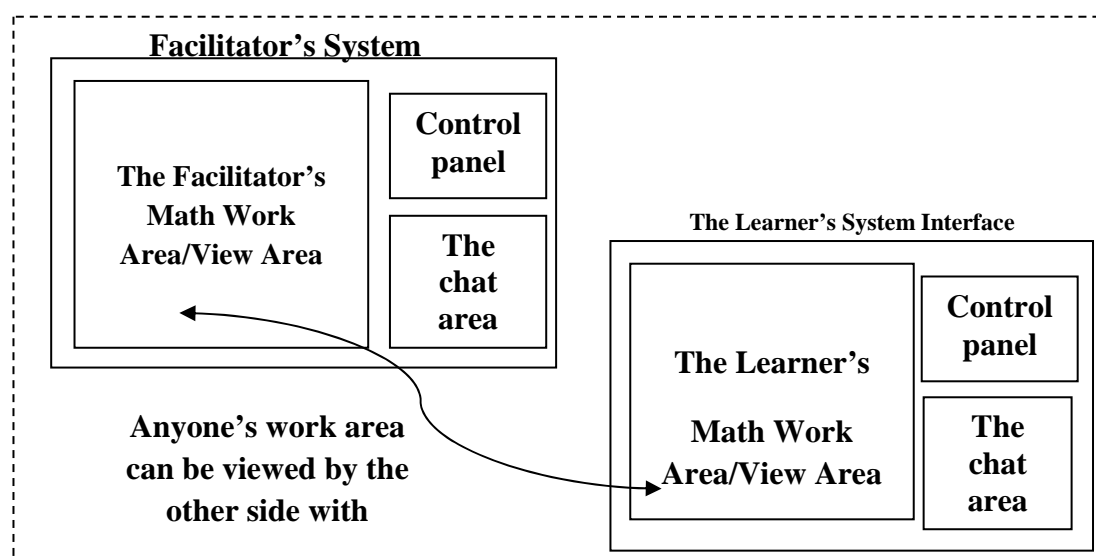
- i. Interactivity must allow complete flow of message loop between the facilitator and the learner.
- ii. Interactivity should be measured from the learners' perspective.
- iii. Interactivity should take both content learning and affective benefits into consideration
- iv. Interactivity should be built upon mutual coherence of messages.

Looking from the perspective of constructive learning of mathematics in the online learning environment, it is of the opinion that until and unless the level of interactivity can be elevated to that of learner-content-instructor interactivity, we will not be able to fulfill all attributes that Yacci posits.

Based on the review on effective mathematics learning and notion of interactivity in online learning, we proposed a model of online learning system that has the following functionalities.

- i. Learners are provided with digital online modules with hypertext or hyperlinks and appropriate nodes to allow non-linear access of subject content, as well as connection to external learning resource
- ii. A microworld that allows learner-controlled explorations
- iii. Mathematical processing visualization or simulation tools that transform abstract concept into concrete processes which can be viewed or visualized
- iv. A mathematics “workplace” which allows learners to “do mathematics” that can be “viewed” by the facilitator in real-time.
- v. An online-chat system that allows real-time chat and discussion.

A diagrammatic representation of the proposed model is shown in Figure 4.



**Figure 4: The Conceptual Model for Online Real-Time Facilitation of Mathematics**

It should be noted that in the proposed system, the design of the chat areas enables communication in a complete message loop. This is in line with Yacci first proposed attribute of interactivity. Next, the model system enables the learner to obtain real-time feedback and guidance from the facilitator. In this way, it is the learner who initiates and determines the completion of the learning process. This fulfills the requirement of the second attribute of interactivity. Thirdly, the connectivity between learner's work area and the facilitator's work area allows close real-time guidance, thus giving affective benefits to the learner. Lastly, the use of an appropriate microworld in the work areas of both the facilitator and the learner to initiate learning establish the environment for mutual coherence in their communications through the chat area.

## Prototype: Learning Rotation via Exploration and Visualization

To illustrate how the model works, the author has developed a prototype. In this prototype, the microworld is designed to allow the learner to explore the concept of rotation in the topic of transformation.

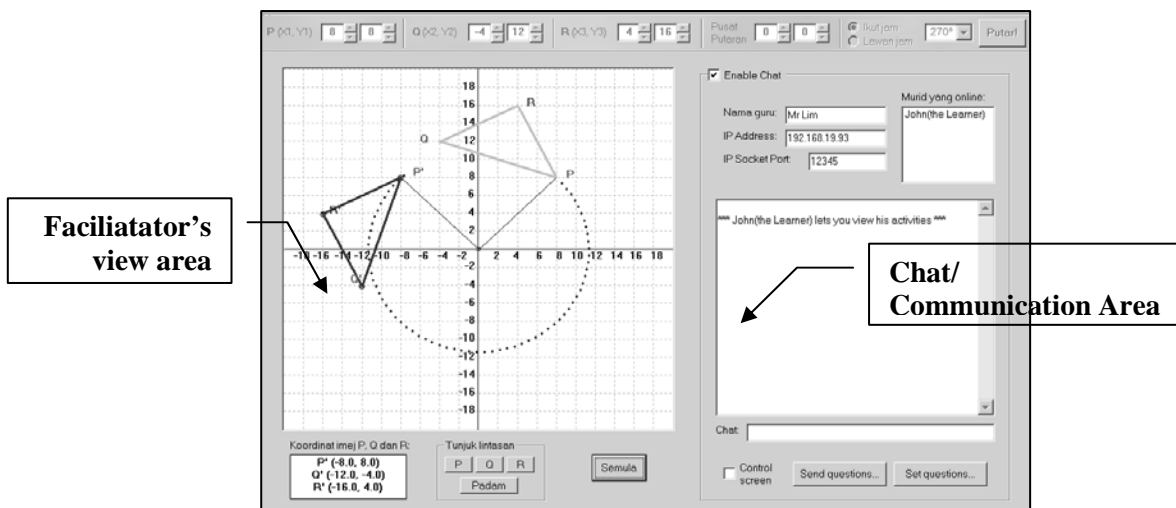


Figure 5: The facilitator's System Interface

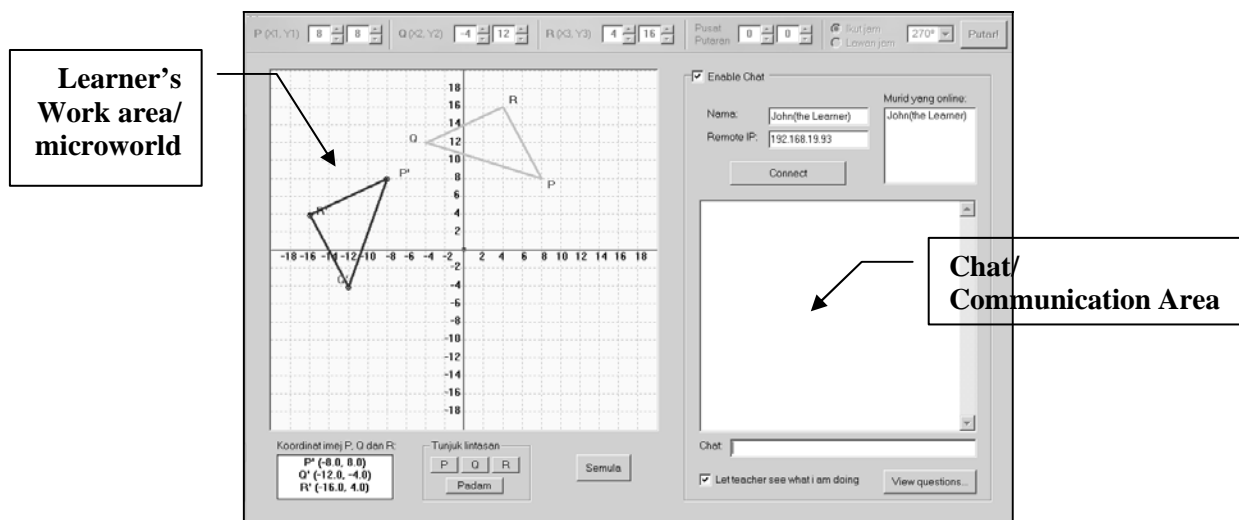


Figure 6: The Learner's System Interface

It can be seen that the proposed model has two core features. The first one is the use of a microworld to be accessed from the work area. The microworld as illustrated in the prototype is designed for visualizing and exploratory learning of rotation concepts. Such learning is inherently constructivist. The second core feature is the communication platform which enables real-time guidance and discussion based on the learning process of the learner which can be “viewed” concurrently by the facilitator. In other words, the facilitator can view the learner’s work area to observe the learning process. Similarly, the learner may be allowed to view the facilitator’s work area if the facilitator wishes to demonstrate to the learner how some mathematical processes should be carried out.

## **Conclusion**

The proposed model and the prototype are aimed at suggesting that it is possible to create a learning system that enables learning and facilitation for ODL learners in the way as though there is no distance between the facilitator and the learner. The demonstration also shows how technology can help to understand abstract processes through visualization.

At this juncture, it needs to be emphasized that the proposed model needs not be confined to the learning of mathematics alone. The argument is, if effective learning subjects of such complexity like mathematics can be made possible in an online environment, there is no reason that the system cannot be utilized or modified for the learning of other subjects too.

Looking from the theoretical perspective, the proposed model appears to be an effective media to facilitate online learning of mathematics. Further research and developments however need to be carried out to test its efficacy. It is of the opinion that future related research should focus on two areas. First is to develop the different types of constructivist learning microworlds for exploring various concepts and topics of mathematics, and later extend to topics in other subject areas. Next is to carry out both qualitative and quantitative research to gather evidence regarding its efficacy as well as to determine ways to further improve the system.

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# **Development and validation of a scale to measure faculty attitudes towards open educational resources**

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## **1. Introduction**

Open educational resources (OER) have emerged as one of the most useful teaching-learning practices in educational arena. It has been used to reduce time to develop courses and facilitate sharing of knowledge. To teachers and students, OER provide access to global content that can be localized without restrictions and create inclusive learning communities (Butcher, 2011). Mostly OER are prepared by teachers for different learners in a specific context. Therefore, place of teachers and their attitude towards open education to provide those conditions that would engage their learners as active participants becomes essential.

However, several research studies reported that learning was tempered by teachers' lack of expertise in OER. Petrides et al (2011) reported that faculty with lower comfort levels in using online technology uses open textbooks in more traditional ways; which hampers independent learning among students. But, with arrival of digital technologies, it has become easier for teachers to share their work not only with their students, but it has also offered opportunity to share their work globally. More specifically, this development encourages them to further develop, practice and model new behaviors with their student. Therefore, there is a need to understand teachers' psychological and behavioral determinants that may influence better use of OER.

On this premise, our study involves understanding why some teachers share educational resources and others do not. In order to investigate this, we examine the OER perception (use and contribution) by teachers in universities as a combined intertwined psychological constructs of teacher's attitude, motivations, their perception of quality and barriers. While the research is in progress, this paper merely describes development of scale of Attitudes toward Open Educational Resources (ATOER) within the framework of a project in the global south to explore the use of OER and evidence of impact of OER. Thus, it discusses various phases of development and validation of scale to assess faculty attitudes toward OER and present the findings of results of Content Validity Ratio (CVR) for scale development process.

## **2. Review of Related Literature**

Review of literature is divided on the basis of three set of constructs extracted from various studies: Awareness of OER, Sharing of Resources, and Adoption and Use of OER.

### **Awareness of OER**

First set of studies (Mtebe & Raisamo, 2014; Jameela, 2014; Karunanayaka, 2012) have assessed teacher's attitudes through understanding of their 'Awareness' of OER. These studies reveal that many teachers are not even aware of the concept and meaning of OER. Some of the teachers who are aware of the concept are not clear about copyright issues (Karunanayaka, 2012; Jameela, 2014). Nonetheless, there are teachers who have both knowledge and concept of OER and copyrights, yet not able to share or use their resources due to lack of technology skills (Mtebe & Raisamo, 2014).

### **Sharing of Resources**

Second set of studies (Wang, & Noe, 2010, Wild, 2011; Rolfe, 2012; Tuomi, 2013) have identified that the OER movement is primarily based on individual's desire to borrow and 'share resources'. Belief in open education, economic reasons and as a reputation enhancer both for institution and individual emerged as strong communal drivers for sharing resources (Rolfe, 2012). Additionally, there are several motives behind sharing behavior such as altruism, prestige and reciprocity which may motivate teachers to share (Wang, & Noe, 2010). In addition, OER sharing also facilitates self-directed learning (Tuomi, 2013). A sense of belonging, shared purpose, and empowerment are the greatest drivers for sharing resources (Wild, 2011).

### **Adoption and Use of OER**

A third set of studies (Pegler, 2012; Hussain et al, 2013; Borthwick, & Gallagher-Brett, 2014) investigated factors associated with 'Adoption and use of OER' determining teachers' attitude for engaging in OER. Free availability and reusability of OER, their reduced cost and ease of use are major reasons for teachers to adopt and use OER (Borthwick, & Gallagher-Brett, 2014). In addition, technology amicable, teacher's competencies, and their ICT skills also determine grounds for adopting and using OERs (Hussain et al, 2013). For reusing OER, positive environment and appropriate openly licensed resources were found major factors (Pegler, 2012).

### **3. Rationale of the study**

Developing a measurement scale that is valid and reliable is always challenging. Several scholars argue that effective measurement is an underpinning of research (DeVellis, 2003; Netemeyer, et al, 2003). Besides that, reliable and valid measures contribute to the legitimacy and development of a research field (Reynolds, 2010). Also, empirical articles that use rigorous methodological procedures, besides being firmly grounded in theory, receive more citations (Colquitt, & Zapata-Phelan, 2007). Several criteria have been proposed for assessing psychometric soundness of scales. One of the foremost criteria is content validity.

Research in OER field is quite recent. Research related to OER is not common due to lack of awareness, funds to support researches and other contextual dynamics. There is also a dearth of empirical research that follows sound methodological approaches. One Indian study by Venkaiah (2007) examined attitude and perception of distance teachers towards OER using a scale that was not subjected to psychometric validation. Researches on OER have yet to adopt rigour in conduct of empirical studies as in other fields of education. It could be due to its emerging nature or it has been rooted in area of

Educational Technology, Information Commination Technology (ICT) and e-learning rather than as an independent field.

The motivation for this research springs from gaps in earlier researches related with OER. Whatever research on attitudes towards OER are available, they do not try to investigate underlying constructs. Content domain specification, and item pool generation are not explained in detail. While much importance has been given to questionnaires and interview schedules, very few used scaling approach to measure attitude. Moreover, relevant research findings were not always been utilized for constructing sound scale to measure faculty attitude towards OER. There is also a lack of research to draw comparative picture of ‘user’ and ‘non-user’ of OER. The ambiguity of ‘contributor’ and ‘non-contributor’ of OER are also visible in many researches.

Building on the methodological inadequacies of previous works, the current research aims to construct a rating scale called Attitudes toward Open Educational Resources (ATOER) that can precisely identify positive and negative pre-dispositions to the concept and practices of OER amongst teachers. Analyses of review provided a basis for developing three major constructs for ATOER scale – awareness, sharing of resources, and adoption and use of OER.

The study will contribute towards the practice of rigorous scale development in researching OER, and describe critical steps in scale development procedure.

#### **4. Methodology**

This section outlines the steps of validation of ATOER scale undertaken in this study. The methodologies used were sequentially elaborated below for each step:

##### *(1) Domain Identification and Item Generation*

Generation of items is the most important element of establishing sound measures (Hinkin, 1995). In the process of developing ATOER scale, initially 65 statements were pooled from review of literature and classified in to three main themes -- Awareness, Sharing of resources and Adoption and use of OER. Afterwards, to avoid duplication, and have clarity, only 26 statements were selected through sorting process based on rigorous discussions within the internal research team. These 26 statements were subjected to content validity by research team. A pool of 30 experts was drawn from the research literature and various projects such as WikiEducator and the Research on OER for Development (ROER4D) group.

##### *(2) Content Expert Validation*

This study uses Content Validity Ratio (CVR) proposed by Lawshe (1975) to identify valid statements. This followed three stages:

At *first* stage, only 30 experts were selected to express opinion on suitability of the identified 26 statements to measure attitudes toward OER. They were asked to rate the statements in a three point scale (1= Not necessary, 2= Useful, but not essential, and 3= Essential). We used an online survey tool to collect data, and experts were also given a



brief about context of the research. CVR was calculated as described by Lawshe (1975) to assess the content validity.

Followed by first stage, CVR was re-calculated combining both '*Essential*' and '*Useful, but not necessary*' ratings to give a combine value of  $CVR_{E+U}$  at *Second stage*. This is a modified CVR approach (Kawachi, 2014).

At *third stage*, ATOER scale was further revised by adding more clarifying items. Language of scale was further simplified. The revised scale includes 34 items. At this stage, we also separated items of three constructs and sent to the 30 experts, which resulted in four additional responses.

## 5. Results and Analysis

In order to examine the validity of ATOER scale, Content Validity Ratio (CVR) was calculated at each stage. Findings and analysis of each stage are discussed below:

*First Stage:* A total of 19 experts out of 30 responded. However, only 15 responses were found to be complete. On the basis of the data, CVR was calculated to be -0.18 which is very less than critical value of 0.49 at  $p < 0.05$  level for 15 experts (Table 1). The draft thus shaped was termed Draft-I.

*Second Stage:* Analysis and discussions on Draft-I draws attention to the speculation that respondents might have ranked the items as '*Useful, but not necessary*' instead of '*Essential*' without understanding that items ranked as '*useful*' but not necessary will be removed from final scale (Lawshe, 1975). This misperception between '*Useful, but not essential*' and '*Essential*', also resulted in low CVR. Therefore in second stage the CVR is re-calculated combining both '*Essential*' and '*Useful, but not necessary*' ratings to give a combine value of  $CVR_{E+U}$  (Kawachi, 2014). The  $CVR_{E+U}$  of scale is calculated to be 0.62, which is more than critical value of 0.49 at  $p < 0.05$  level for 15 experts at 0.05 level. The draft shaped after second stage was termed Draft-II.

*Third Stage:* Only 4 expert's respondent at this stage.  $CVR_{E+U}$  of revised scale was calculated to be 0.68. It could be inferred that instruction of background of study and details of three constructs might have helped expert to understand the scale. Additionally,  $CVR_{E+U}$  is calculated 1.00 for most of the new items (Table 1). The draft shaped after this stage was termed Draft-III.

Table 1: Stage-wise Items and CVR

Stage-I	Stage-II	Stage-III	Items	CVR (Draft-I)	CVR <sub>E+U</sub> (Draft-II)	CVR <sub>E+U</sub> (Draft-III)	CVR Combined II+III stage (Draft-IV)
1	1	1	I have prior experience of using OER	0.7	1.0	1.00	0.73
2†	2†	2†	All teaching resources available on internet are OER	0.0	0.0	0.00	-
3†	3†	3†	All resources are OER such as video, audio, text and so on	0.0	-0.5	-0.50	-
4	4	4	OER means no need to ask any further permission to use them	0.5	0.5	0.50	0.52
5	5	5	OER means the resource is openly licensed	0.8	1.0	1.00	0.81
		6*	OER means learning resource is freely available to be used by anyone		1.0	1.00	1.00
		7*	OERs are digital or non- digital materials that can be re-used for teaching/learning/ research		1.0	1.00	1.00
6	6	8	I have knowledge of Intellectual Property Right to understand OER	0.5	1.0	1.00	0.62
7	7	9	Sharing of educational resources improves my professional respect	0.8	0.5	0.50	0.70
8	8	10	It gives me pleasure if someone adopt/adapt my educational resources	0.9	1.0	1.00	0.90
9	9	11	Sharing helps me to get feedback	1.0	1.0	1.00	1.00
10	10	12	Sharing enhances my personal and organizational reputation	1.0	0.5	0.50	0.90
11†	11†	13†	I share resources with trustworthy people	0.1	0.0	0.00	-
12	12	14	Sharing of educational resources increases my profile amongst peers and others	0.9	0.5	0.50	0.80
13	13	15	OER increase my network and sphere of influence	0.9	1.0	1.00	0.90
14	14	16	As a teacher, it is my responsibility to share all educational resources created by me	0.9	0.5	0.50	0.80
15	15	17	OER helps me to reach out to more students	1.0	1.0	1.00	1.00
16	16	18	OER improves my chance of recognition at global level	1.0	0.5	0.50	0.90
17	17	19	I believe that sharing educational material as OER will encourage others to do so	1.0	0.5	0.50	0.90
18	18	20*	Sharing of OER amongst colleagues encourages self-reflection	1.0	-0.5	-0.50	-
		21*	Sharing enhances my confidence as I see myself in part of larger community		1.0	1.00	1.00
		22*	When others use my OER, it improves my sense of achievement		1.0	1.00	1.00
		23*	OER helps to disseminate my ideas		1.0	1.00	1.00
		24*	I can use OER easily due to its reusability		1.0	1.00	1.00
		25*	I use OER as they are available at reduced cost		0.5	0.50	0.50
		26*	OERs are easy to use as they are accessible		1.0	1.00	1.00
22	22	27*	Sharing of work could expose my deficiencies	0.1	1.0	1.00	-

24†	24†	28†	I do not want to undergo any peer inspection	0.4	0.5	0.50	-
25†	25†	29†	Educational materials developed for my student will not serve any purpose for others	0.4	0.5	0.50	-
26	26	30	OER promotes collaboration and consortia	0.3	1.0	1.00	1.00
		31*	I am efficient in Information Communication Technology (ICT) skills to adopt and use OER	1.0	1.0	1.00	1.00
		32*	I adopt OER for my teaching as they fulfil academic requirement of my students		1.0	1.00	1.00
		33*	My own competencies and knowledge towards OER helps me to participate or adopt OER		1.0	1.00	1.00
		34* *	My work gets visible to others, if I use OER		0.0	0.00	-
Average CVR Value				<b>-0.18</b>	<b>0.62</b>	<b>0.68</b>	<b>0.88</b>

\* Items added in Draft-III

\*\* Deleted items based on low CVR

† Delated items with Negative Statements

*Final Validation Stage:* A very less number of experts' responded at third stage, therefore at this stage  $CVR_{E+U}$  was calculated combining  $CVR_{E+U}$  of second and third stage. The average value of  $CVR_{E+U}$  was calculated 0.88 which is more than critical value of 0.42 at  $p < 0.05$  level for 20 experts. Further, 8 items (item no.2, 3, 13, 20, 27, 28, 29 and 34, from the third stage) were omitted owing to their low  $CVR_{E+U}$  value. A final valid scale with 26 items was thus prepared, termed Draft-IV. Henceforth, ATOER scale (Draft-IV) was validated and has been sent for pilot testing to 40 Indian University teachers comprising users, non-users, contributors and non-contributors to OER.

Results indicate that the items with low CVR may not be most appropriate ones to measure the constructs. Similarly, items with high  $CVR_{E+U}$  indicate higher relevance to be included in the scale. Hence, process of validation is essential steps in scale development.

## 6. Discussion

Research suggests that there are inconsistent guidelines for item development and in analysis process for constructing a scale. In many cases it is not clear what guidelines researchers use to define the constructs to be measured, generate an item pool, revise or remove items from the scale, or examine validity of resultant scale scores. Therefore, it is suggested that it is essential to begin with a clear conceptualization of the target construct. Moreover, content of the initial items pool should be over inclusive and their wording needs careful attention. Next, items should be tested in methodical way for validation. Thus, in turn, this paper contributes to understanding the procedure of validation of scale primarily for attitude scale for OER.

As the current research is in progress, we have not been able to present the reliability of the scale, and a final standardized scale for use in all contexts will emerge at the end of our research.

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# **Blessing or curse? Open educational resources accessibility: The University of the South Pacific experience**

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## **Abstract**

The advent of OER has been hailed by educators globally as a means through which many more people will have access to education. However, accessibility of OER have also been the subject of debate for many OER advocates and the like whereby it has been argued that it in fact limits accessibility to education for many. OER accessibility may cover various facets such as language, design and technical. Technical accessibility of OER in particular is quite critical given that many of the available OER reside in a digital format and mostly available on the web although they may also be available in other mediums (Kanwar & Stamenka, 2011).

This paper will focus on findings of a project carried out in the last quarter of 2013 by the University of the South Pacific (USP), a regional university owned by twelve countries in the Oceania region which aimed to address technical accessibility of OER. The project focussed on the specific goal of finding out if OER could be "instantly" accessed for just-in-time learning opportunities for students who are based outside the main Fiji campus in Laucala, Suva. Twenty seven OER in the English Language Skills discipline were selected to be part of this project and were tested in seven of the twelve countries of the USP based upon a set of technical guidelines. Technical accessibility of OER is perhaps contextual, however, it is hoped that the discussions of the findings and associated recommendations from the USP will be of value to many education providers globally who plan to utilise OER for the enhancement of their learning and teaching landscape.

Keywords: OER, Open Education, OER Accessibility, The University of the South Pacific

## **Introduction**

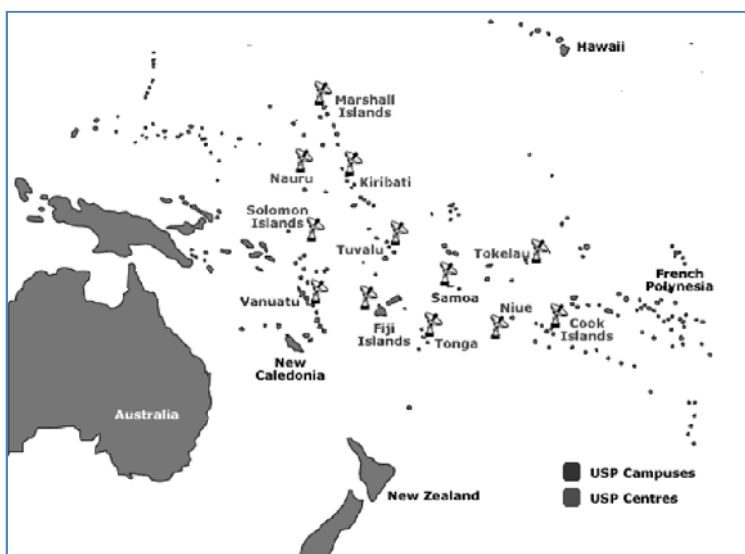
Open Educational Resources (OER) has been hailed by many education advocates globally as an effective means through which education can be made more accessible to many more people around the world. The subject however of accessing these OER has been a debatable one in that some have argued that it in fact is not accessible at all if one looks at its accessibility from different perspectives such as through language use, design or technical. Technical accessibility is quite critical given that many of the OER available in the world today reside in a digital format and mostly available on the web although they may also be available in other mediums (COL & UNESCO, 2011).

The consideration of OER accessibility from a technical perspective is the focus of this paper and will be discussed in relation to a project initiated by the University of the South Pacific (USP), a regional university owned by twelve countries in the Oceania region in the last quarter of 2013. The project looked at testing the technical

accessibility of OER specifically focused on English language skills in seven of its twelve member countries in the Oceania region. It will begin its discussion with some background on the project, discussion of the findings, its limitations and recommendations that would be of benefit to education providers around the globe who are keen to embark on using OER to enhance its learning and teaching landscape.

### **The University of the South Pacific (USP) – background**

In order to be able to interpret the intent of the project including its associated findings, it is therefore important to outline some background on the USP. The USP is a regional university that is owned by twelve Pacific island countries in the Oceania region namely, Cook Islands, Fiji, Tuvalu, Tonga, Vanuatu, Kiribati, Nauru, Samoa, Solomons, Niue, Tokelau and Marshalls Islands (Refer to Figure 1).



**Figure 1. USP geographical region**

It is spread across 33 million square kilometers of ocean and population vary in size from Tokelau with 1600 people to Fiji with more than 800, 000 people. It is because of these vast distances between each member country that warranted the need to offer some form of distance learning which began in the 1970s at the USP. These distance learning offerings expanded to include the setting up of its own satellite communications network known as USPNET that connects all its twelve member countries (USPNet, 2008). The USPNET has undertaken many upgrades through the years of its existence since 1968 and this coincides with much greater demand for its academic programmes to be offered in flexible learning modes in particular online (USP Strategic Plan 2013-2018, n.d.). The USPNET therefore provides the backdrop under which the testing of the 27 OER was carried out in the last quarter of 2013.

## **Project Background**

The project carried out by the USP to explore the technical accessibility of OER was borne out of an institutional project known as Strategic Total Academic Review (STAR) that is aimed at an holistic review of all academic undergraduate and postgraduate programme to ensure its alignment with the USP's mission thus ensuring work-ready graduates in all the twelve countries that own the USP (USP Strategic Plan 2013-2018, n.d.). The STAR project is organised into working groups that is focused on key areas identified to ensure that its aim is achieved. One of these key areas is English language proficiency (Working Group 4, 2012) and it was decided by the working group responsible for this that there was a need to expand English language skills support to all its campuses. In particular, the group looked at the possibility of self-paced typed resources that could be used to supplement English language skills support for the USP student. OER was looked upon as a possible response to meet this need therefore given that the expertise on OER resided in the Centre for Flexible Learning (CFL) unit of the USP, a request was therefore put forward to operationalise this request. The initial step that was undertaken involved the selection of OER in English language skills and this was a joint collaboration between the CFL staff and members of the STAR working group. Following the completion of the selection process, twenty seven OER was identified as suitable to provide the English language skills support for the USP student. All these OER resided in a digital format on the web and a further request was submitted to CFL that its technical accessibility be tested to ensure that all USP students are able to access these resources. This resulted in the formulation of technical testing guidelines based on the outcome that all twenty seven OER focusing on English language skills can be “instantly” accessed for ‘just-in-time’ learning opportunities for students outside Laucala Campus. A team of fourteen members consisting of Education Technologists, Learning Systems, Information Technology officers and Instructional Designers was formed to carry out the tests.

## **Methodology**

In order to achieve the outcome, a site which housed all the twenty seven OER was created. It was from this site that all the testing groups were required to initiate the tests. This was critical to ensure that the test settings were equivalent across the testing groups and to iron out any inconsistencies in how the tests were initiated. Figure 2 (Centre for Flexible Learning, 2013) below provides a snapshot of the site.

Home

Recent site activity

- [Home](#)  
edited by oer testing
- [Background](#)  
edited by Ala Lesama-Fabak
- [Test Resources](#)  
attachment from oer testing
- [Home](#)  
comment from Ala Lesama-Fabak
- [Background](#)  
edited by oer testing
- [View All](#)

This page contains the list of OER resources that can provide you with instant, just-in-time assistance for all your English language skills needs while studying at USP. We hope that you will find this useful in your course of studies at USP. We would very much value and appreciate your feedback about this site that can help us improve.

OER - English Language Skills

<a href="#">English Composition I</a>	<a href="#">English Composition II</a>	<a href="#">Grammar Practice: Fragments</a>	<a href="#">The Way we write (vimeo)</a>
<a href="#">The Writing Center</a>	<a href="#">Basic Writing (WikiBooks)</a>	<a href="#">Public Speaking</a>	<a href="#">So you have to write an essay (blog site)</a> <a href="#">So you have to write an essay (articulate ppt)</a>
<a href="#">Essay Writing with readings (USP)</a> <a href="#">Essay Writing with readings (NZ)</a>	<a href="#">Develop Effective Writing Habits</a>	<a href="#">Information Literacy</a>	<a href="#">Creative Writing</a>

Figure 2. A snapshot of the site housing the 27 OER

Each OER was then assigned a number from one to twenty seven for ease of identification during the testing and the data analysis phase. This was then collated in a checklist document as shown in a snapshot in Figure 3 (Centre for Flexible Learning, 2013).

No.	Resource Description	URL	TESTED?
			<input checked="" type="checkbox"/>
1.	English Composition I	<a href="http://www.saylor.org/courses/eng1001/">http://www.saylor.org/courses/eng1001/</a>	
2.	English Composition II	<a href="http://www.saylor.org/courses/eng1002/">http://www.saylor.org/courses/eng1002/</a>	
3.	Grammar Practice: Fragments	<a href="http://www.saylor.org/site/wp-content/uploads/2012/09/eng1000-2.2.1-fragments.pdf">http://www.saylor.org/site/wp-content/uploads/2012/09/eng1000-2.2.1-fragments.pdf</a>	
4.	The Way we write (Vimeo)	<a href="http://vimeo.com/35071627">http://vimeo.com/35071627</a>	
5.	The Writing Center	<a href="http://writingcenter.unc.edu/handouts/">http://writingcenter.unc.edu/handouts/</a>	
6.	Basic Writing (WikiBooks)	<a href="http://en.wikibooks.org/wiki/Basic_Writing">http://en.wikibooks.org/wiki/Basic_Writing</a>	
7.	Public Speaking	<a href="http://www.saylor.org/courses/comm101/">http://www.saylor.org/courses/comm101/</a>	
8.	So You have to Write an Essay	<a href="http://douglasesaywriting.blogspot.com/">http://douglasesaywriting.blogspot.com/</a> <a href="http://www.douglas.bc.ca/~shared/mm/learningcentre/essay-writing/">http://www.douglas.bc.ca/~shared/mm/learningcentre/essay-writing/</a>	
9.	Essay Writing with Readings (USP) Essay Writing with Readings (NZ)	<a href="http://www.usp.ac.fj/studyskills">http://www.usp.ac.fj/studyskills</a> <a href="http://oil.otago.ac.nz/oil/module1.html">http://oil.otago.ac.nz/oil/module1.html</a>	
10.	Develop Effective Writing Habits	<a href="http://writingcommons.org/process/develop-effective-writing-habits">http://writingcommons.org/process/develop-effective-writing-habits</a>	
11.	Information Literacy	<a href="http://writingcommons.org/summary">http://writingcommons.org/summary</a>	
12.	What is Creative Writing	<a href="http://writingcommons.org/genres/creative-writing">http://writingcommons.org/genres/creative-writing</a>	

Figure 3. Snapshot of the OER checklist document



A set of guidelines was created which focused on the following elements:

- Load time - this examined the length of time that a selected OER site took to fully load
- Ease of download - this examined the speed, size and format type of the OER tested. In addition, it also considered the availability of appropriate plugins in this regard.
- Navigability– this examined the ease in which it is to navigate within a web page/site and with frequencies of either easy, moderate to difficult indicated.

Seven out of the twelve member countries of the USP were identified as the focus of the tests and specifically this involved ten campus sites across these seven countries. This is illustrated in Figure 1.

In addition, tests was carried out using an array of devices which was normally used by students namely: Desktop PC with CPU connection, Desktop PC with NComputing connection, laptop, tablet, mobile. This was tested within the campus premises and if time permitted extended externally to internet cafes and other sites that would be frequented by students. Tests were carried out during the peak and non-peak periods of each campus site and this differed across the eight test sites as this was dependent on time differences across the six countries and also the volume of internet traffic by users in each site. Table 1 below provides a snapshot of time differences amongst the seven countries that was part of the project (USPNet, 2008).

**Table 1. Time differences for the seven countries in reference to Fiji**

<b>If its 10am on Monday 1<sup>st</sup> September, 2014 in Fiji, it will be:</b>
Monday 1 <sup>st</sup> September, 2014, 10am in Kiribati
Monday 1 <sup>st</sup> September, 2014, 10am in Marshall Islands
Monday 1 <sup>st</sup> September, 2014, 9am in Vanuatu
Monday 1 <sup>st</sup> September, 2014, 9am in Solomon Islands
Monday 1 <sup>st</sup> September, 2014, 11am in Tonga
Monday 1 <sup>st</sup> September 2014, 12pm in Samoa
Sunday 31 <sup>st</sup> August 2014, 1pm in Cook Islands

A further consideration on these devices was the connection type used which was either wired or wireless and as many physical locations within the tests sites were covered as much as possible within the testing time-frame to ensure that it reflected students' usability habits (Koroivulaono, 2014).

Figure 5 provides a snapshot of the guidelines document used during the testing phase (Centre for Flexible Learning, 2013).

## USP OER Testing – Guidelines

### Overview

This document outlines guidelines for the testing of 27 OER sites focusing on English language skills for selected USP campuses outside of Laucala namely Alafua, Labasa, Lautoka, Cooks, Solomons, Marshalls, Kiribati, Emalus and Tonga.

### Outcome

The OER sites focusing on English language skills can be “instantly” accessed for ‘just in time’ learning opportunities for students outside Laucala Campus.

OER No.	Date tested			Campus/Centre								
Time stamp												
Venue of test (Check all that apply)	<input type="checkbox"/> Student Lab <input type="checkbox"/> Staff Office <input type="checkbox"/> Wireless <input type="checkbox"/> Internet Cafe <input type="checkbox"/> Hotel <input type="checkbox"/> Other (please specify below) _____			<input type="checkbox"/> Student Lab <input type="checkbox"/> Staff Office <input type="checkbox"/> Wireless <input type="checkbox"/> Internet Cafe <input type="checkbox"/> Hotel <input type="checkbox"/> Other (please specify below) _____			<input type="checkbox"/> Student Lab <input type="checkbox"/> Staff Office <input type="checkbox"/> Wireless <input type="checkbox"/> Internet Cafe <input type="checkbox"/> Hotel <input type="checkbox"/> Other (please specify below) _____			<input type="checkbox"/> Student Lab <input type="checkbox"/> Staff Office <input type="checkbox"/> Wireless <input type="checkbox"/> Internet Cafe <input type="checkbox"/> Hotel <input type="checkbox"/> Other (please specify below) _____		
Site load time	[hh]	[mm]	[ss]	[hh]	[mm]	[ss]	[hh]	[mm]	[ss]	[hh]	[mm]	[ss]
Desktop PC												
Laptop												
Tablet												
Mobile												
Other:												
Ability to navigate within the web page/site												
Desktop PC	Easy	Moderate	Difficult	Easy	Moderate	Difficult	Easy	Moderate	Difficult	Easy	Moderate	Difficult
Laptop	Easy	Moderate	Difficult	Easy	Moderate	Difficult	Easy	Moderate	Difficult	Easy	Moderate	Difficult
Tablet	Easy	Moderate	Difficult	Easy	Moderate	Difficult	Easy	Moderate	Difficult	Easy	Moderate	Difficult
Mobile	Easy	Moderate	Difficult	Easy	Moderate	Difficult	Easy	Moderate	Difficult	Easy	Moderate	Difficult
Other:	Easy	Moderate	Difficult	Easy	Moderate	Difficult	Easy	Moderate	Difficult	Easy	Moderate	Difficult

**Figure 5. Snapshot of the OER testing guidelines document**

A team of fourteen was formulated consisting of Education Technologists, Instructional Designers, Learning Systems personnel and Information Technology officers who were then further divided up into seven groups of two and assigned to each of the eight identified sites. The project operated under a very tight schedule in which tests were required to be completed within a one month period from October to November 2013 and specifically each time was allotted a one week period to carry out the tests at the selected sites. Table 2 provides a schedule of tests that was carried out.

**Table 2. Schedule of OER tests**

<b>NO.</b>	<b>CAMPUS/CENTRE</b>	<b>DATES</b>
1	Lautoka	21 - 25 October
2	Labasa	21 - 25 October
3	Savusavu	21- 25 October
4	Alafua	21 - 25 October
5	Savai'i	21- 25 October
6	Kiribati	5 - 9 November
7	Solomon Islands	5 - 9 November
8	Marshall Islands	11 - 15 November
9	Cook Islands	11 - 15 November
10	Tonga	12 - 18 November

### **Scope and limitations**

One of the key limitations of this research is the time-frame under which it was carried out. Testing had to be carried out within a one month period and even prior to the commencement of testing, the research team had very little time at their disposal for the selection and thorough articulation of the project design. This was also closely tied with funding and the funders directives to utilise the funds within a given time period. The time-frame also restricted the team's ability to expand the testing to include students as well. In addition, the tests were further inhibited by occasional power surges and network downtimes during the testing phase. The scope of this study is quite extensive and can be articulated through several perspectives, however, this paper takes a more generalised perspective to ensure relevance to its audience and acknowledges that there is further opportunities to interpret the findings from other perspectives.

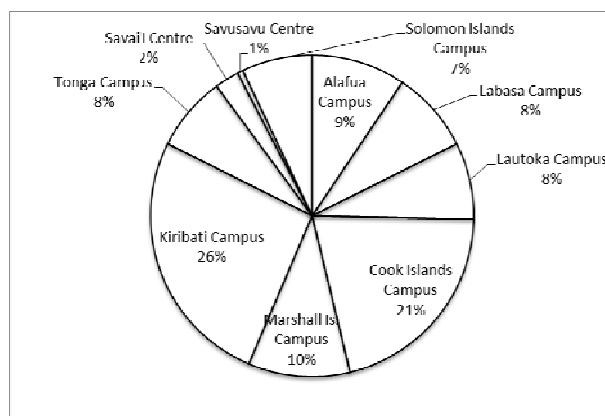
### **Results**

The following results were collated from test data that was collected by each testing group and focused on the seven elements highlighted earlier.

### **Number of tests carried out**

There was a total of 1063 tests carried out across the ten test sites located across the seven member countries of the USP and it varied in number from one campus to another from as low as 6 and as high as 276. The variation in the number of tests across the nine test sites was to be expected taking into consideration the size of each test site that determined the volume and availability of devices for each designated test group. If one looked at Savusavu Centre for instance, there is one computer lab with fifteen computers

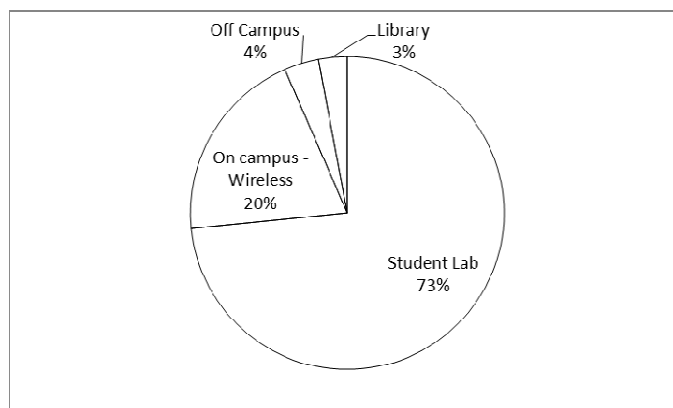
that are connected to the internet as compared to Kiribati campus that have on hand two computer labs with about fifty computers (Savusavu Study Centre, 2012). One must also take into consideration the type of connection that is available in all the test sites as this further determined the number of tests that was carried out. Savusavu, Labasa, Lautoka, Savai'i and Tonga campuses did not have wireless connectivity during the testing period which perhaps explains why they rendered low numbers from within the range of 6 to 87. Interestingly, this reasoning does not apply to Solomon campus which has existing wireless connectivity however the explanation for rendering a testing figure of 75 is attributed to the frequent power surges and network downtime during the testing phase.



**Figure 5. No. of Tests as per test site**

### Location of tests

Tests were conducted in student computer labs, wireless hotspots within the campus site, library, staff offices, and off-campus sites such as internet cafes. Majority of the tests as Figure 6 shows were conducted in the student computer labs eliciting a 68% figure as this was where it was expected that many of the students will be accessing the 27 OER resources. This was followed by wireless hotspots on campus rendering a share of 19% where it is expected to be the next available option for students to access the OER resources.



**Figure 6. No. of Tests as per location on test site**

### Types of Device & Connection type used

The type of device used range from desktop PC, laptop, tablet and mobile phones. Most of the tests as shown in Figure 7 were conducted using desktop PC eliciting a percentage figure of 91% and this was consistent with the findings illustrated in Figure 6. The next highest figure was laptops that elicited a 24% share with the remaining being that of mobile devices in the form of tablets and mobiles.

The connection type that was used during the test range from Wired – Ncomputing , Wired –CPU, campus and external wireless as shown in Figure 8. This result is consistent with the findings illustrated in Figures 6 and 7 where it elicited a 64% figure for Wired connection through NComputing and CPU and this was followed by 22% of campus site wireless and 15% for external wireless.

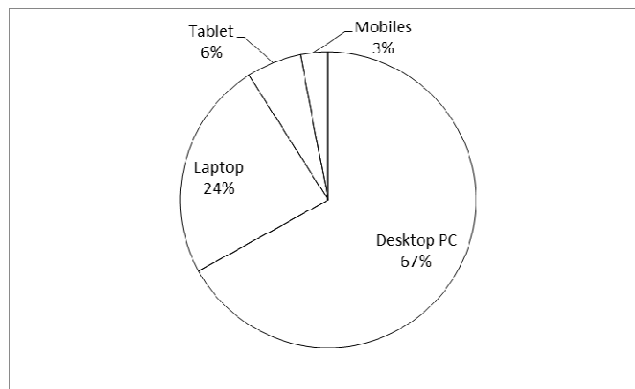


Figure 7. No. of tests as per types of devices

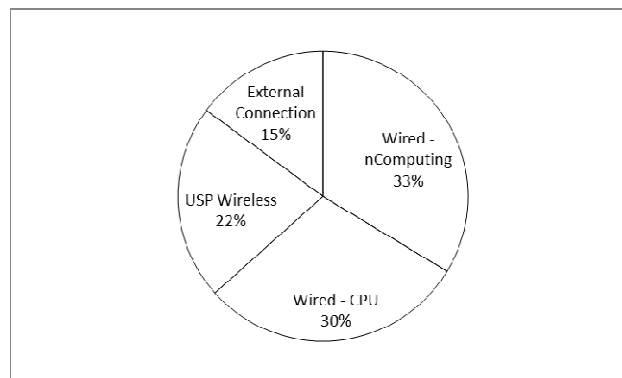


Figure 8. No. of tests as per connection type

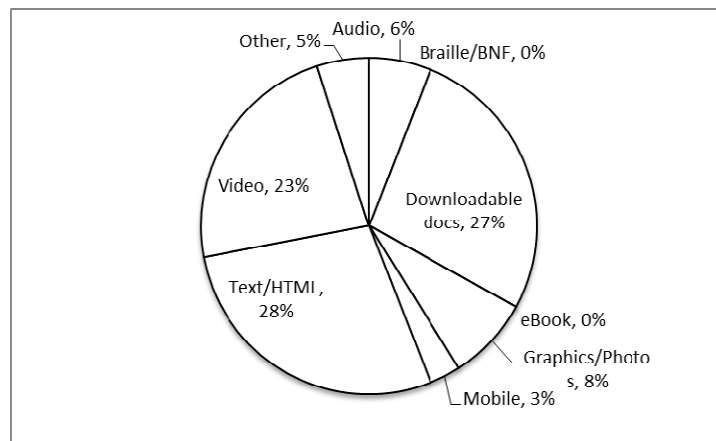
### Accessibility of the 27 OER

The results of the testing proper in terms of frequency, location, and device used has been outlined and discussed, however, the results elicited needs to be put into context relative to the intent of the project and that is to find out if the twenty seven OER in

English language skills was instantly accessible where students were expected to be enrolled. The next section therefore will look at the OER accessibility context relative to three elements namely: load time, navigability and ease of download.

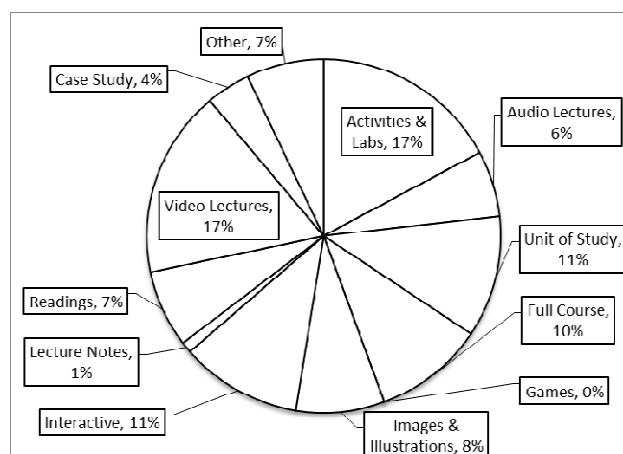
### The 27 OER – background

Prior to an outline and discussion of the findings of the three elements of load time, navigability and ease of download, it is vital to provide some background on what the 27 OER consist of. The twenty seven OER that were selected were of varying media format and material type. The categorisation for media format and material type is based on the manner in which the OER commons (OER Commons, 2014) categorises these two features. In terms of media formats, it reveals that most were video, text/html and downloadable documents. This is illustrated in Figure 9 below.



**Figure 9. Types of OER – media formats**

Material type revealed an assortment of resources where much was in the form of activities and labs, full courses, readings and interactive modules. This is illustrated in Figure 10 below.



**Figure 10 – Types of OER – material type**

### Load time

Load time is a computing science term and is derived from another computing science term referred to as loader (WhatIs.com, 2014) and as the source expresses, is a component that locates a particular computer programme and loads it to its main storage as in the case of a personal computer which is its random access memory (2014). The load time therefore in the context of this study is therefore the duration in which it takes for the loader to execute its function as described. The load time of the site, linked resources, documents, audio and video resources of each of the 27 OER sites was tested. This was measured from a time interval of less than a minute, between 1 to 5 minutes, more than 5 minutes and inability to load at all.

### Site load time

The data collected relative to the site load time for all 27 OER as shown in Figure 11 revealed that 78% of the tests elicited a site load time of less than a minute. 16% of tests fell within the 1 to 5 minutes time interval, 2% for more than 5 minutes and 3% could not load at all. This finding is encouraging in that it suggests that OER that is available in digital format on the web, at least for English language skills, is accessible when site load time is taken into consideration.

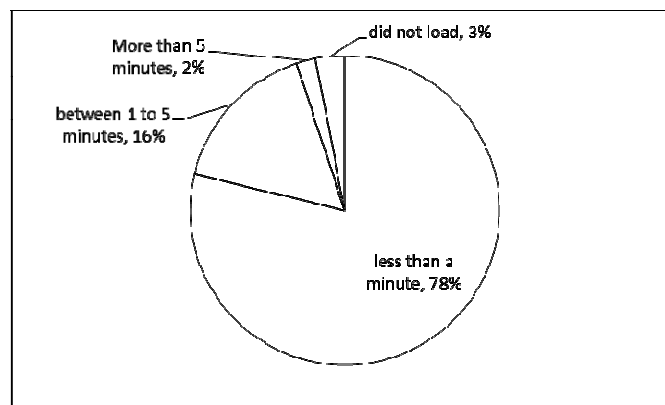
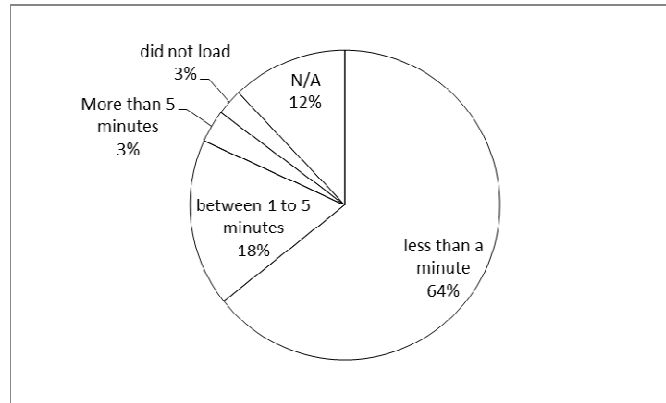


Figure 11. No of tests as per site load time

### Linked resources load time

Tests carried out for site load time relative to linked resources revealed a similar result to that of the site load time testing as shown in Figure 12 in that 62% of the tests fell within the less than a minute time-frame. This was followed by 17% of tests eliciting a load time of between 1 to 5 minutes, 12% revealed that this test did not apply and 3% of the tests revealed more than 5 minutes load time and also that it could not load. Although it may appear that only 6% fell within the 5 minute load time and did not load category, this nonetheless reveals that there are OER in the digital format on the web that is inaccessible by potential users and this can be due to various factors such as the

local IT context with the absence of appropriate plugins and slow bandwidth environments as was the case in the USP context.

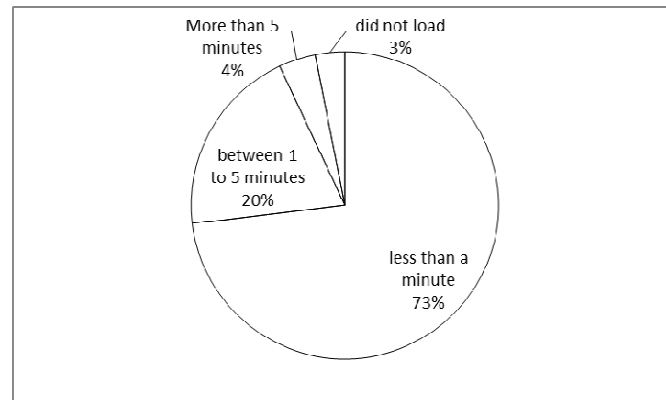


**Figure 12. No. of tests as per linked resources load time**

## Documents load time and ability to download

### Load time

Tests carried out for document load time as shown in Figure 13 revealed that 73% of the tests elicited a load time of less than a minute, 20% fell within the 1-5 minutes load time, 7% fell within the critical time interval of more than 5 minutes, and inability to load which warrants further examination to explore whether this was prevalent for any particular OER that was part of this test.



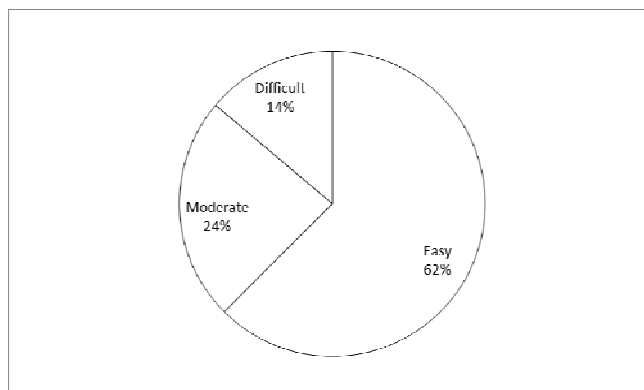
**Figure 13. No. of tests as per documents load time**

### Ability to download documents

The findings from tests on ability to download documents as shown in Figure 14 revealed quite similar results where 62% of the tests revealed an easy ability to download, followed by 38% of tests within the moderate to difficult range. Similarly with that of the load time findings, this will warrant further scrutiny of the data to



identify whether or not such results were specific to a particular OER that was part of the test.



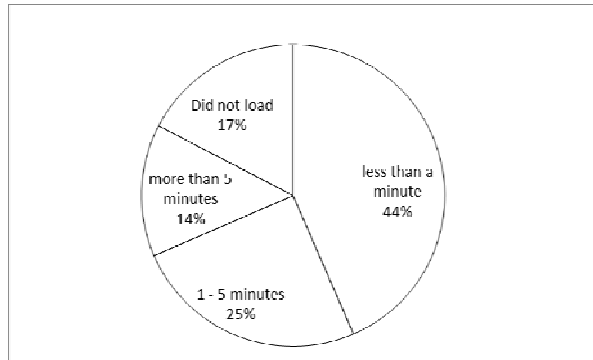
**Figure 14. No. of tests as per ability to download documents**

The findings on document load time and ability to download suggests several things and one in particular is that document load time and ability to download are closely interlinked. Although it did not elicit the same exact figure, it suggests there are other factors at play here such as personal perceptions of the tester that deem this a subjective exercise. In addition, the findings here suggests that OER containing documents could be a factor in limiting accessibility to OER in the English language skills discipline and this perhaps highlights the need by the USP to relook at OER in the form of downloadable documents and perhaps other alternatives could be explored to enable easier access which may involve repurposing of the OER. A plausible alternative is to store such material types in off-line formats such as in a book, CD or mobile devices.

### **Audio and Video resources load time and ability to download**

#### **Load time**

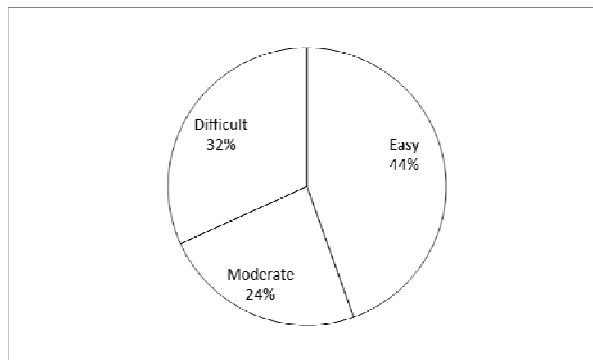
Tests carried out for audio and video resources load time as illustrated in Figure 15 revealed that 44% of the tests in all sites had a load time of less than a minute and 39% took a minute and more to load with 17% of the tests revealing that it could not load at all. This suggests similarly to the findings of documents load time that these OER will require further scrutiny for possible repurposing and quite critical a re-examination of the IT infrastructure at the USP to iron out factors that is contributing to the inaccessibility of the OER tested.



**Figure 15. No. of tests as per Audio and Video resources load time**

### **Ability to download audio and video resources**

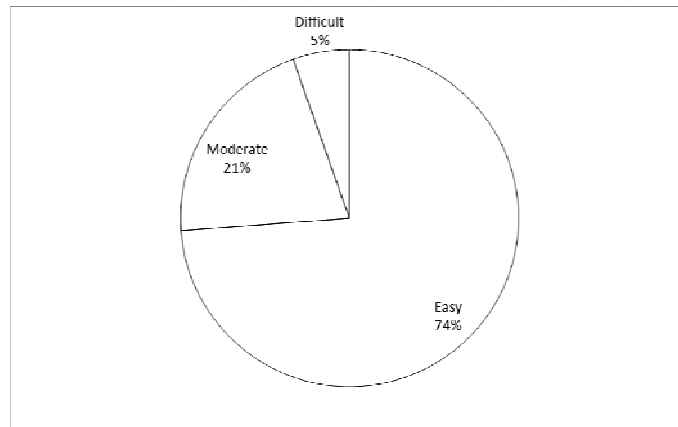
The findings on load time as illustrated in Figure 16 revealed that 44% of the tests had an easy ability to download and 56% of the tests fell within the Moderate to Difficult range which substantiates even further the need for the USP to reconfigure its IT environment in particular an enhancement in bandwidth as it seems that the more elaborate the media format the more difficulty it is in downloading when one compares figures from the ability to download documents as compared to audio and video resources. One of the other findings that contributed to such a level of difficulty is the absence of appropriate plugins to be able to download various media formats.



**Figure 16. No. of tests as per ability to download audio and video resources**

### **Navigability**

The tests carried out for navigability as illustrated in Figure 17 revealed that 74% of tests revealed a great ease in navigating through the OER sites and 26% on the other hand were found to have moderate to difficult navigability. This is quite an encouraging finding and can be attributed to several factors with the obvious being the design of the OER. Nevertheless, one must also take note of the findings within the moderate to difficult range and this could be easily resolved with feedback provided to the OER creator and could also be repurposed for better navigability which ultimately enhances OER accessibility for the user.



**Figure 17. No. of tests as per navigability of OER**

### **Recommendations**

There are two recommendations that is vital to ensuring that the 27 OER is instantly accessible by all students.

The first is the need to reconfigure the IT environment in place at the USP. This covers various facets namely an increase in bandwidth, the continuous updating of plugins at its various access points.

The second is that the USP will need to consider repurposing some of the OER that will enable easier access. This will mean looking at alternative delivery formats that reside in an off-line format either in a print book or in a CD or DVD. This repurposing recommendation will of course need to be considered together with licensing conditions.

### **Conclusion**

OER has been perceived as a means through which accessibility to education can be enhanced and it is a fact that many OER reside in a digital format on the web (COL & UNESCO, 2011). This has conjured a counter argument in that OER does the exact opposite whereby many people around the world that are potential OER users are inhibited in accessing OER because of technical factors such as limited to zero access to internet. This study took a step further in highlighting that even with internet access, the ability of an OER user to access varies depending upon one's IT environment and resources at one's disposal. The form in which an OER is presented be it a document, audio or visual does not in any way mean that an OER is inaccessible and thus inhibits its ability to enhance access to educational opportunities. The very nature of OER in that it allows customisations to be made within its licensing conditions counteracts the inaccessibility of OER argument. The very fact that one can customise an OER as that expressed in one of the recommendations previously stated indicates that OER is not a curse but a blessing and that it is indeed an effective vehicle to ensuring greater accessibility to educational opportunities for people all over the world.

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# The potential of mobile phones to transform teacher professional development

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## Abstract

*Futures thinking is used by governments to consider long-term strategic approaches and develop policies and practices that are potentially resilient to future uncertainty. English in Action (EIA), arguably the world's largest English language teacher professional development (TPD) project, used futures thinking to author possible, probable and preferable future scenarios to solve the project's greatest technological challenge: how to deliver audio-visual TPD materials and hundreds of classroom audio resources to 75,000 teachers by 2017. Authoring future scenarios and engaging in possibility thinking (PT) provided us with a taxonomy of question-posing and question-responding that assisted the project team in being creative. This process informed the successful pilot testing of a mobile phone-based technology kit to deliver TPD resources within an open distance learning (ODL) platform. Taking the risk and having the foresight to trial mobile phones in remote rural areas with teachers and students led to unforeseen innovation. As a result EIA is currently using a mobile phone-based technology kit with 12,500 teachers to improve the English language proficiency of 700,000 students. As the project scales up in its third and final phase, we are using the new technology kit—known as the 'trainer in your pocket'—to foster a 'quiet revolution' in the provision of teacher professional development at scale to an additional 67,500 teachers and 10 million students.*

**Keywords:** Futures thinking, School Based Professional Development (SBPD) model, Teacher Professional Development (TPD), Mobile phones, Open distance learning (ODL)

## Introduction

Futures studies has been formalised in educational, industrial and government fields to forecast potential alternative futures to a 'probable' future to ensure a higher probability of 'success'. Futures thinking's scenario method of postulating different possible futures encourages collaboration to consider plausible alternatives to the status quo, or what is likely 'probable' in the future. The approach is fluid and sees the future as a problem to be solved, explicitly linked to actions in the present. Through the authoring and critique of probable, possible and preferable future scenarios, *English in Action* (EIA) was empowered to explore and pilot mobile phone technologies to build an alternative vision of the future that we could work for in the present. EIA's vision of the future was unequivocally premised on the implementation of a sustainable and robust large scale School Based Professional Development (SBPD) model capable of improving the English language competence of nearly 10 million Bangladeshi school children and 75,000 English teachers from 2009 to 2017.

There are few examples of international development projects using mobile phones to deliver TPD. Current research around using mobile phones for TPD tends to focus on

development of the awareness of the potential of mobile devices for learning (Schuck et al., 2013), using tablets in challenging educational contexts (Onguko, 2014) or changing teacher attitudes towards the use of mobile phones in teaching (Ekanayake and Wishart, 2014). Presently, EIA is successfully providing an innovative SBPD model that leverages the power of mobile phones to make audio-visual TPD materials and classroom resources available to 12,500 teachers and nearly 700,000 students through and ODL platform (Power et al., 2012; Shrestha, 2013; Walsh et al, 2013). Over the next three years the project will deliver this TPD through the SBPD model to an additional 67,500 teachers and nearly 10 million students.

### **English in Action (EIA)**

The importance of using information and communication technologies (ICTs) to learn English and to improve the social and economic prospects of all Bangladeshis—particularly those living in poverty—is a Bangladesh government priority. As a result, English in Action (EIA), a nine-year (2008-2017) English language teaching education program striving to improve the communicative English language skills of 25 million Bangladeshis was launched in 2008. The project is dedicated to changing English language learning by making it more student-centred, thereby potentially changing lives in the future because students will be able to communicate in English at levels enabling them to participate more fully in economic and social opportunities. The collaborative project<sup>1</sup> is funded by UKaid from the Department for International Development (DfID) and works closely with the Government of Bangladesh's Ministry of Primary and Mass Education (MoPME) and the Ministry of Education (MoE).



*Figure 1: English in Action's (EIA) logo and slogan*

#### *EIA's School Based Professional Development (SBPD) model*

EIA's School Based Professional Development (SBPD) model is an innovative form of TPD that assists teachers in learning and applying new English language teaching practices in the classrooms, schools and communities where they work. Through supported school-based ODL supported by a diversity of mediated authentic videos (MAVs) (Woodward et al 2014.) and audio classroom resources accessible on teachers' mobile phones, or the 'trainer in your pocket' (Walsh et al., 2013), the classroom becomes the nexus of learning (Walsh and Power, 2011). EIA's SBPD model stands out because it is an efficacious mobile learning solution for the field of international development that does not leave teachers on their own to make sense of ODL materials and TPD resources. Teachers learn how to access and use EIA's resources while receiving support from a teacher-partner within their school, a community of teacher colleagues from their upazilas (sub-districts) and through bi-monthly project cluster meetings across 16 months. This bespoke program assists teachers in developing, supporting and sustaining new

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<sup>1</sup> For more information on EIA's partners see <http://www.eiabd.com/eia/index.php/abouts/project-partners>

communicative and student-centred pedagogic practices while simultaneously improving their own English language proficiency.

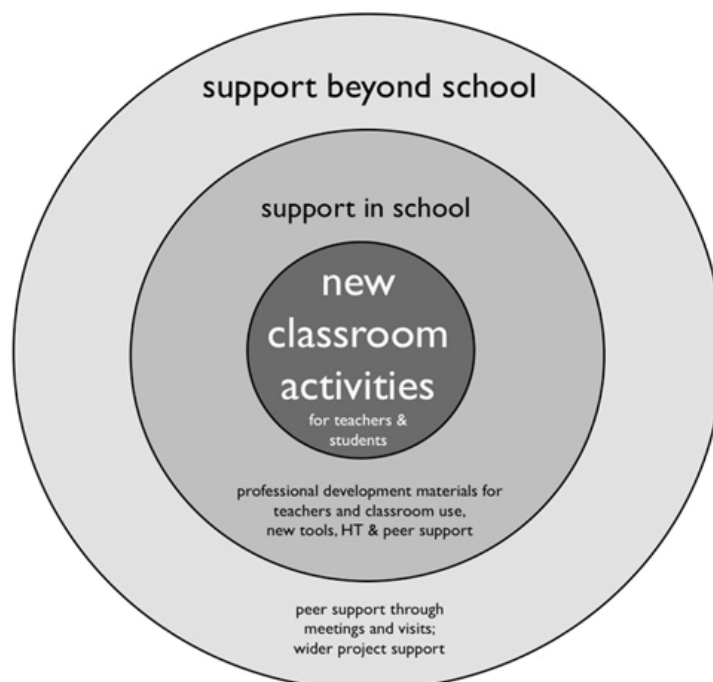


Figure 2: EIA's SBPD model (Walsh and Power, 2011)

Participation in new classroom activities is at the heart of teachers' TPD with EIA's SBPD model. Teachers are able to view, review and tryout new teaching practices exemplified by peer teachers who have themselves been participants in the project. There are two additional layers of support helping teachers in carrying out these new activities: 'support in school'; and 'beyond the school'. 'Support in school' includes an extensive collection of audio resources for primary students, directly aligned with Bangladesh's national English textbook *English for Today* books 1 – 5 (NCTB, 2013). In total there are currently 452 audio lessons for the primary classroom. There are 190 audio resources for secondary classroom which include audio recordings of many stories, dialogues, passages and poems from *English for Today* books 6-10. Additional support in school is provided by the head teachers (HT) and through peer support as two teachers from each selected school attends the 16 month cycle of EIA's SBPD. 'Support beyond the school' includes peer support, cluster meetings and wider project support including school visits, knowledge sharing and a FaceBook page<sup>2</sup>.

#### *EIA's developmental research*

EIA's developmental research was carried out with 700 teachers from government schools across 21 of Bangladesh's upazilas (2008–2011). Two thirds of these teachers worked in primary schools and one-third in secondary. Approximately 80% of all EIA schools were in rural areas with limited or no access to electricity. The developmental research helped the project explore the use of mobile technologies or eLearning for English teachers' TPD and the delivery of audio resources for classroom use (Walsh, 2011).

EIA's development research (2009-2010) provided extensive audio and visual resources to primary and secondary English teachers through a technology kit with either

<sup>2</sup> <https://www.facebook.com/EnglishInActionBangladesh>

the Apple iPod Nano (for primary teachers) or iPod Touch (for secondary teachers), both with portable rechargeable speakers. The iPods were chosen because the project believed the teachers would find the use of the Apple MP3 players relatively easy. Although iPods were more expensive than other devices available at the time, they were chosen because they had the functionalities the project believed necessary to provide teacher TPD through an ODL platform supported by EIA's SBPD model. These crucial resources, played on portable rechargeable speakers, were also chosen because they were thought to have the best possible chance of improving the communicative English proficiencies of both students and teachers.

### *Challenges*

Although the pilot phase was successful in terms of the iPods used for teachers' TPD, there were considerable challenges reported. Teachers experienced difficulty trying out and incorporating the new student-centred pedagogy demonstrated in the TPD resources, even though these were also introduced in cluster meetings. A significant technological challenge was that many teachers found it extremely difficult to charge both the iPod and portable speaker—in addition to their own mobile phones—due to the intermittent availability of electricity across Bangladesh. But the most significant technological challenge the project encountered was the high cost of the iPod Nano and Touch. These Mp3 players are too expensive to provide to 12,500 teachers in the current upscaling phase (2012-2015) and to an additional 67,500 teachers by 2017.

### **Thinking differently about the future**

Mindful of the success of the developmental research EIA knew that its SBPD model that leveraged the powered and flexibility MP3 players within an ODL platform to deliver TPD was viable and responded to the realities of Bangladesh. More importantly the research confirmed the viability of such an approach at scale with tens of thousands of teachers. The project's initial success was a catalyst that pushed us to creatively think and act 'outside of the box' to collaboratively overcome our technological and pedagogical challenges. Futures thinking's (Bell, 1997; Sardar, 1999; Slaughter, 2005) scenario method alongside foresight exercises (Cascio, 2009) and possibility thinking (Craft, 2001) guided EIA researchers in Dhaka in authoring scenarios for 'possible' and 'preferable' futures over a 'probable' future. This assisted us in solving EIA's technological challenge within the project's budget constraints (Monodol and Walsh, 2011).

Using futures thinking alongside possibility thinking (PT) encouraged us to ask 'what if' and 'as if' questions, "refusing to be stumped by circumstances but being imaginative in order to find a way around a problem" (Craft, 2000, p. 3). By engaging in possibility thinking we drew on our "little 'c' creativity" or what Craft (2001) refers to as our ability to cope with change in the 21<sup>st</sup> century. Our possibility thinking was powerful and helped us to think differently about the future—and to foster our creativity—to find a way to overcome our technological challenge within the project's budget. We individually asked 'what if' questions that were open to different possibilities that we could develop further:

- 'What if we can't find MP3 players that have screens to view the TPD resources at cost?'
- 'What can we do with the mobile phones teachers already have?'
- 'What if teachers can access the internet on their own mobile phones in 2014? Or 2017?' and



- ‘What if smart phones with enough storage to hold EIA’s resources were common across Bangladesh by 2017?’

Then we came together to engage in the process of collaboratively sharing our questions and problem-posing and problem-finding to engage in divergent and convergent thinking. To answer our ‘what if questions, we scanned the world for multiple perspectives, past and present, from researchers, teachers, electronic vendors and individuals. These diverse perspectives, essentially factors or drivers of what *might* happen or come to be in Bangladesh, helped us explore how our ‘what if’ questions could be answered to address the challenges we were confronted with.

### *Authoring future scenarios*

The collaborative authoring of scenarios—resulting from our possibility thinking—encouraged knowledge exchange and the development of a deeper understanding of the central issues and factors inherent in the technological challenge EIA faced. We authored three future scenarios to help guide the development of a new technology kit pilot study to choose the best possible kit to deliver EIA’s TPD resources to 12,500 teachers through 2015. Below we present our probable and preferable future scenarios. We thought deeply about what actions we would need to achieve in the present, to bring about our preferable future and avoid the probable future. This stance allowed us to reinforce what EIA was already doing well and build on the project’s success in delivering TPD.

#### *The probable future*

*In Bangladesh, particularly from a government perspective (A21 & Digital Bangladesh) there is an assumption that ICT will benefit everyone, especially teachers and students. People have greater access to mobile phones and other ICT devices. Access to ICT is more ubiquitous, but not everyone has access. Those living in rural areas still struggle to access the Internet and there is not always a nearby reliable source of energy. While more individuals have access to ICT, they are still struggling with ICT literacy, meaning they don't necessarily have the ICT skills to access and use productively all that is on offer. There is still a 'digital divide' in the ways in which society chooses to make technology accessible and usable to the members of society. There are many hopes pinned on this relationship being constructively arranged, but it has not been entirely realised. There are easily accessible OERs that can be accessed on mobile phones to help teachers both improve their English language skills and learn to teach in more communicative ways, but the uptake is not as quick as expected even though many individuals believe learning English will improve their social and economic opportunities.*

#### *The preferable future*

*Bangladeshi schools, through networked teachers, online teacher training programs and affordable/accessible network ubiquity have gained a reputation for being able to deliver English language learning tailored to individual needs. The development of learning networks advanced, no longer subject to time and place constraints. Individualized networks emerged as communities collaboratively redefined the work of schools to better serve local needs. Networks of teachers, learners, parents and professionals responded to a changing society to meet the needs of the expanding internationalized knowledge economy. Pupils leave primary school with high levels of English language proficiency while many secondary pupils emerge bilingual. Mobile phone ownership in urban and rural areas has reached saturation. Many individuals' own mobile phones, with powerful processors, abundant memory, larger screens, and open operating systems, are used for learning and accessing greater social and economic opportunities.*

## Low-cost mobile phone pilot study

EIA was conceptualised to intentionally address issues of scale, embedding and quality for the present and future across rural and urban contexts. Budget constraints of 6000 Bangladeshi Taka (BDT) per teacher (£60) mandated that EIA construct multiple kits to field test and pilot for the current upscaling phase (2012-2015), while also thinking post 2015 when there will much less funding available for the approximately 67,500 teachers to whom EIA will still be required to provide a robust program of TPD. Drawing on our preferable future scenario and the result of our possibility thinking, we chose 2 low-cost alphanumeric mobile phones with 4GB micro SD cards and portable rechargeable speakers and an SD card and portable rechargeable speakers to pilot as three separate kits from March to September (2011) in two rural upazilas. The results of the mobile phone based technology kit were extremely successful with pilot study teachers overwhelmingly reporting satisfaction and success using the kits with their students. This resulted in EIA assembling a new technology kit that was distributed to 12,500 teachers (January - June 2014) across Bangladesh. The kit (Figure 2) consists of the Nokia C1-01 (£35) mobile phone, a portable rechargeable Lane amplifier/speaker (£25) and all of EIA's TPD materials and classroom audio resources on 4 GB micro SD cards (£2). The kit has affectionately become known as the 'trainer in your pocket'



Figure 3: EIA's mobile-phone based technology kit known as "the trainer in your pocket"

### EIA's 'trainer in your pocket'

Following the success of the pilot studies, all of EIA's TPD materials were revised for use with the new mobile phone-based 'trainer in your pocket'. We illustrate how the 'trainer in your pocket' is used in two examples of ODL. The first explicitly illustrates how teachers are presented with TPD resources, in the form of mediated authentic videos (MAVs). The second outlines EIA's bespoke English for Specific Purposes (ESP) program, *English Learning for Teachers* (EL4T) which aims to increase teachers' communicative English language proficiency and teaching practices by providing ESP instruction directly related to the national textbook..

#### *Teacher TPD delivered through ODL on low-cost mobile phones*

Each primary and secondary teacher received the new technology kit and an EIA produced Teacher Guide. The teacher TPD materials are centred on the MAVs and supported by the

print Teachers' Guide. The TPD materials are divided into 8 modules and each emphasises the four skills of listening, speaking, reading and writing. The MAVs are authentic classroom based TPD films illustrating examples of student-centred English teaching lessons that emphasise a communicative approach using the government textbook

Each of the MAVs start with a female narrator, who is the 'expert' voice introducing each TPD focus of the module. What makes EIA's MAV resources for TPD innovative is that the narrator first sets a 'viewing task' prior to the teachers watching the video and then poses reflective questions for them to consider and respond to *after* practising similar techniques in their own classroom. The expert voice of the narrator enables EIA to move away from the default cascade model of large-scale professional development where information is passed down from the original author, through a range of master trainers, eventually reaching the teacher in an often 'diluted' form (Robbins and Latchem, 2003).



Figure 4: EIA's narrator presenting the TPD through a MAV

To understand how the 'trainer in your pocket works' for teacher TPD we provide an example from the EIA produced *Secondary Teacher Guide: Secondary Teaching and Learning* from Module 8 entitled 'Looking back and moving forwards'. For Module 8, there are 3 video clips, 4 audio files and a 'Teachers Talking' audio file for extended reflection on practice. In the first film, the narrator introduces the module (Figure 3):

*Hello and welcome to Module 8 – Looking back and moving forwards. This is the final module of the English in Action programme. We begin with Part 1 (SM8-V1) – the communicative classroom. As you have read in the module 8 introduction, you are going to watch video clips of a lesson for Class 7, Unit 4, Lesson 10.*

*In the first clip, you are going to watch the first part of the lesson. As you watch the video clip, think about these questions:*

- *What is the focus of the first part of the lesson?*
- *What do the students practise?*

*Now watch the clip and take notes.*

This is followed by a film of the classroom with the students reviewing vocabulary from an earlier lesson and the teacher introducing new vocabulary that they will encounter (Figures 4 and 5) in their texts. The teacher then writes 3 questions on the board and asks the students to read a story and look for the answers to these questions. Afterwards

students switch papers and correct their partner's answers. There are over 60 female students in the classroom.



Figure 5: *communicative English teaching*



Figure 6: *Students engaging in communicative English*

Afterwards the narrator comes back on and says:

*So what is the focus of this first part of the lesson?*

*The first part of the lesson involves a short reading passage – the first part of a story. The students read the story but before they do, the teacher prepares them for the story by reminding them of the previous lesson, and then introducing them to some words from the story. This is a pre-reading activity. As the students practise these words, they are already thinking about the story and what will happen, and this helps them to understand the story when they read it.*

*The students then answer the questions on the board. Do you remember what the teacher said, back in Module 2, when asking students to read a passage and answer questions based on it? "Remember, you don't have to read every word." The students here are NOT reading every word; they are scanning the text in order to find the information to answer the 3 questions. The teacher then asks them to switch papers with their partner – why does he do that? Well, think back to Module 5. It helps students to become more independent and to think about their learning and keeps them engaged in the class and in their learning. Did you also notice how the teacher asks students from around the class and always praises the students?*

*Let's continue watching – why does the teacher ask the students to write their own question about the story?*

The video then continues with students writing their own questions and asking their partners to answer them before the teacher invites selected students to ask their questions to the whole class.

The video narrator then comes back on and summarises what the teachers have viewed and focuses on the idea of ‘recycling language’ and the communicative English language learning activities the students engaged in:

*After reading the story, the students each write a question about it. Here they are recycling language, and they are also checking that they understood the key points of the story. They ask each other questions in pairs, and as a whole class. This also helps the teacher to see if the students have understood the passage.*

*So now for the second question – what do the students practise?*

*[PAUSE]*

*The students practise reading of course, but they also practise listening – they listen to the teacher who is speaking in English, and they listen to the other students. They also practise a little speaking and writing – they each write a question about the story, and they answer each other's questions.*

*Although this lesson focuses on reading, the teacher uses English as much as possible with his students, and tries to make the lesson as communicative as possible.*

*Now go to Module 8 ‘Try in the Classroom 1’ in the Teacher Guide where there is a task for you to try so that you can make your own classroom more communicative.*

### *English Language for Teachers (ELAT)*

English language teachers in Government and non-Government schools in Bangladesh are non-native speakers of English. As a result, their communicative English language proficiency is low. Thus, many English teachers use the Grammar Translation Method of teaching. This method does not focus on teaching students how to communicate in English (Prator and Celce-Murcia, 1979); rather teachers ‘translate’ the text using Bangla focusing on meaning, rather than communication. In order to address this challenge, EIA developed an innovative ODL course called *English Language for Teachers (ELAT)* for both primary and secondary English language teachers (Shrestha, 2012).

*ELAT* is an ODL self-study English for Specific Purposes (ESP) course, with audio files accessible through micro SD cards on teachers’ mobile phones that are used alongside a print guide. *ELAT* was designed to provide teachers with access to the ESP demands of Bangladesh’s national textbook series, *English for Today*. *ELAT* does this by explicitly focusing on speaking and listening skills that take into account functional English language, structures and vocabulary of direct relevance to communicative classroom teaching. *ELAT* contains two sets of bilingual (Bangla and English) audio and print-based materials for to use at their own pace. There is a total of 60 hours of ODL activities for both primary and secondary teachers.

## Fostering a ‘quiet revolution’ in the provision of teacher professional development

The previous examples illustrate how EIA is using the ‘trainer in your pocket’ for large-scale teacher professional development within a SBPD model and for self-study within an ODL platform. Paramount to EIA’s TPD is that teachers can revisit the videos to view successful student-centred teaching practices in classrooms similar to their own. Afterwards, they can compare and reflect upon EIA’s TPD resources alongside their uptake of student centred communicative English language teaching practices. We collaboratively problematised the ‘probable’ future on offer because we deeply care about the future of all children, particularly children in Bangladesh. Drawing on our ‘little-c creativity’ we thought differently about how to leverage the power of mobile phones to co-create more sustainable educative futures with the Bangladeshi teachers and students we work with.

We argue the use of the ‘trainer in your pocket’ with in the SBPD model—the result of collaborative futures thinking—is working to foster a ‘quiet revolution’ (Chappell et al. 2011, 150) in the provision of TPD at scale in Bangladesh. This is because researchers within EIA engaged in possibility thinking to co-construct possible futures to challenge current assumptions about the technological and pedagogical future of Bangladesh. We did this to provoke other pathways than what was to likely happen in the ‘probable’ future.

We believe our approach is ‘changing learning and changing lives’ because over time, we have witnessed noticeable changes in the creative community of teachers and students we have been lucky enough to work with. For example, Bangladeshi teachers are using their own ‘little c creativity’ to maximise the learning potential of the ‘trainer in your pocket’. As the project scales up in its final phase, we are certain all stakeholders can engage in the collaborative, collective and co-creative endeavour needed—that assumes commitment to excellence and engaged involvement (Chappell, Walsh and Craft, 2013)—to institutionalise all of EIA’s TPD resources, making them open educational resources (OERs). Thus, with the rapid changes in technology, teachers across Bangladesh will have access to the pedagogical resources they need to challenge the status quo as they themselves engage in possibility thinking to transition from *what is* to *what might be* through ‘what if?’ and ‘as if’ thinking. (Craft, 2012, p. 182).

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# **Learner autonomy through the adoption of open educational resources(OER): Using social network services and multi-media e-textbooks**

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## **Abstract**

*With the development of social network services (SNS) on the Internet, the world has access to a huge amount of resources and information, allowing people to choose carefully what they need and want to share with others. The main idea behind open educational resources (OER), freely accessible and openly licensed documents, fits the online learning system using SNS well. However, the huge gap between higher education and social network media concerning sharing activity and OER use remains a challenge. This challenge is due to the lack of a mutual assistance spirit among teachers, the lack of skill to choose and reuse OER, and dissatisfaction with having to use the resources of others. This means that the problem lies in the psychological conflicts and technical capabilities of the teachers. We have developed a learning system that allows the learner to freely choose learning resources using a SNS.*

## **Keywords**

OER, Open Education, E-books, MOOCs, SNS, Open Badges

## **1. Introduction**

The development of social network services (SNS) has made huge amounts of resources and information accessible and people can easily choose and share what they need and want. Several ideas for online education using SNS have been proposed. One idea that fits



the online learning system well is open educational resources (OERs), which are freely accessible and openly licensed documents.

However, there is a huge gap between higher education and social network media as well as between teachers and students concerning sharing activity and OER use. These gaps are mainly due to the challenges associated with the lack of a spirit of mutual assistance and OER skills among teachers, and teachers' dissatisfaction with using resources created by someone else. Therefore, these problems are due to teachers' motivation, technical know-how, and psychological conflicts. Meanwhile, there is growing awareness in higher education of students establishing various and wide relationships and extensively sharing knowledge through open network communities such as SNS, blogs, and wikis. It is now impossible to meet student interests using current learning management systems hosted by institutions alone (Sclater, 2008).

Another online education idea is the use of e-textbooks. The International Digital Publishing Forum (IDPF) has proposed the EDUPUB format to meet the requirements of next generation learning content based on the e-book EPUB3 format (IDPF, 2014). However, at present, most e-book readers do not support the media-rich functions of the EDUPUB format such as embedding video, JavaScript compliance, and JavaScript Object Notation (JSON).

Creative Higher Education Learning Objects (CHiLOs) aim to realize a comprehensive open network learning system by using various existing technologies, e-textbooks in EPUB3 format, and various learning resources including OER on open network communities such as SNS.

The basic outline of this paper is as follows. "2. New Architecture using E-textbooks in Open Network Learning" provides a brief overview of CHiLOs architecture. "3. Results of Demonstration Experiment" presents our experimental results. "4. Discussion of Experimental Results" describes the results and "5. Conclusion" is a summary.

## **2. New Architecture using E-textbooks in Open Network Learning**

Goodyear (2005) described networked learning as a learning model in which information and communications technology are "used to promote connections between one learner and other learners; between learners and tutors; between a learning community and its learning resources". To realize the learning model, any learning resources in the model should be aggregated, remixed, repurposed, and shared (Kop, 2011).

A learning method using e-textbooks provides a new way of learning adapted to the network learning model. With the advent of the EPUB3 format, e-books now include media-rich and interactive contents. The IDPF (2011) stated that "The EPUB specification is a distribution and interchange format standard for digital publications and documents. EPUB defines a means of representing, packaging and encoding structured and semantically enhanced Web content — including HTML5, CSS, SVG, images, and other resources — for distribution in a single-file format." Thus, the EPUB3 format has greater sourcing flexibility. In the field of education, learning materials in EPUB3 format

are easily repurposed by tutors, adapted to improve learning outcomes, and also offer a way of avoiding vendor-lock-in (Belfanti, 2014).

Our CHiLOs were created as large-scale online courses in comprehensive online learning systems using EPUB3 e-textbooks in an open network environment. CHiLOs create learner communities in large-scale online courses in order to promote active connections among learners through shared open learning resources.

CHiLOs consist of four elements: CHiLO Book, CHiLO Lecture, CHiLO Badge, and CHiLO Community (Figure 1).

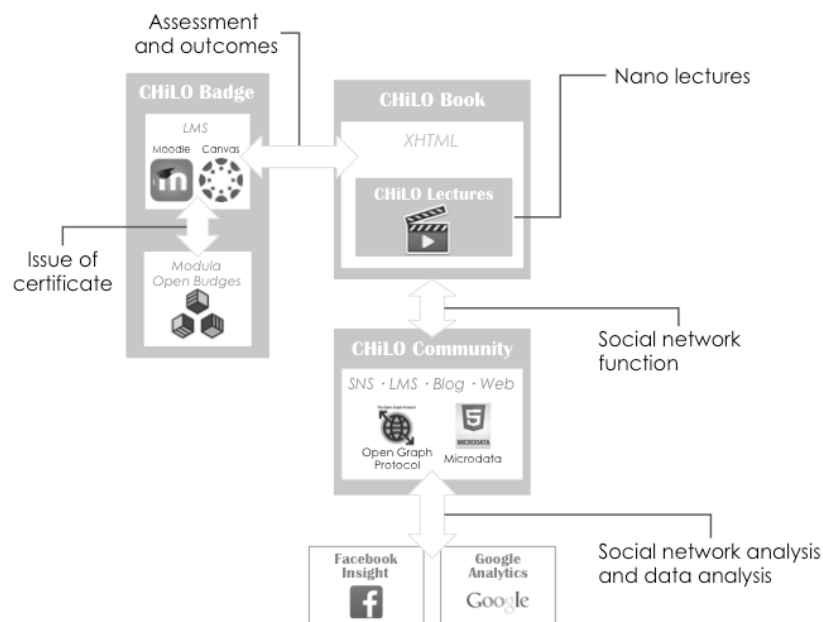


Figure 1. Conceptual diagram of CHiLOs.

### *CHiLO Book and CHiLO Lecture*

The core component of CHiLOs is CHiLO Book, which is created in EPUB3 format and has media-rich contents including graphics, animation, audio, and embedded videos.

CHiLO Lecture consists of videos with scripts, quizzes, and other learning materials. Videos are 1-minute nano lectures. This concept came from an experiment showing that the viewing time of most online learners is approximately 1 minute (Hori, 2013a) (Figure 2).

A CHiLO Lecture is equivalent to one section in a traditional textbook. A CHiLO Book includes approximately ten CHiLO Lectures. A standard CHiLOs course comparable to a traditional university course with one academic credit consists of ten CHiLO Books.

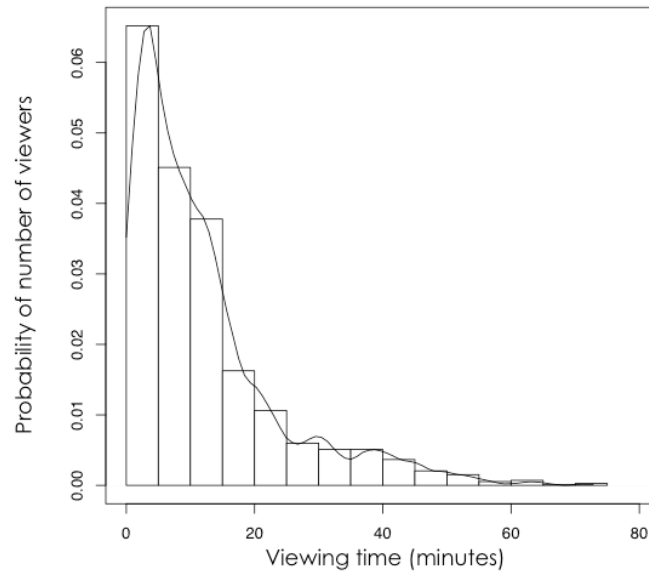


Figure 2. Learners' viewing time (Hori, 2013a).

### *CHiLO Badge*

It is difficult to perform indirect assessments such as learning time and academic workload in large-scale online courses. Although CHiLOs adopted a direct assessment approach for learning outcomes, completion of a CHiLOs course is measured in standard course hours corresponding to academic credits.

Whenever a learner completes a CHiLO Book, they receive a CHiLO Badge, which is a simple mechanism of outcome assessment in CHiLOs. When a tutor wishes to check a learner's progress, he/she just asks the learner to present their CHiLO Badges and does not need to confirm with indirect assessment tools such as grade books, tracking of past results, and test scores. CHiLO Badge is based on Open Mozilla badges (see <http://www.openbadges.org>).

### *CHiLO Community*

In a large-scale community, a tutor is incapable of teaching many learners. A CHiLO Community consists of many learners and a few tutors called "connoisseurs" who act as substitutes for teachers. A learner who studied and completed CHiLO Books in a specific field can become a connoisseur. The connoisseur and learner stand on equal ground so that a connoisseur often exchanges information with learners in their community.

In the CHiLO Community, a learner does not learn from a tutor, but on their own with CHiLO Books as the learning materials. In this way, learners are constantly required to find suitable CHiLO Books in the community. The CHiLO Community provides some

methods of discovering, sharing, aggregating, and repurposing CHiLO Books for learners.

The first of these methods is Open Graph Protocol (OGP). OGP was originally created in Facebook (see <https://www.facebook.com/facebook/info>) but is also available in other web services. OGP enables any web page to become a rich object in a social graph (see <http://ogp.me>). Web page contents can be readily shared by adding them to OGP.

The second method is Microdata. Microdata, the Web Hypertext Application Technology Working Group HTML specification, is a mechanism for adding machine-readable annotations to documents so that tools can extract trees of name-value pairs from the document (WHATG, 2014). It is easy to provide suitable information to any user through search engines using Metadata in a web page.

A CHiLO Book including an XHTML file with OGP and Microdata is connected by dedicated referral servers. Metadata tags of both OGP and Microdata in the CHiLO Book contain information about the title, where to download, thumbnail index, and description. Learners can easily search the contents of any CHiLO Book using web search engines such as Google, Yahoo, and Bing through the referral servers.

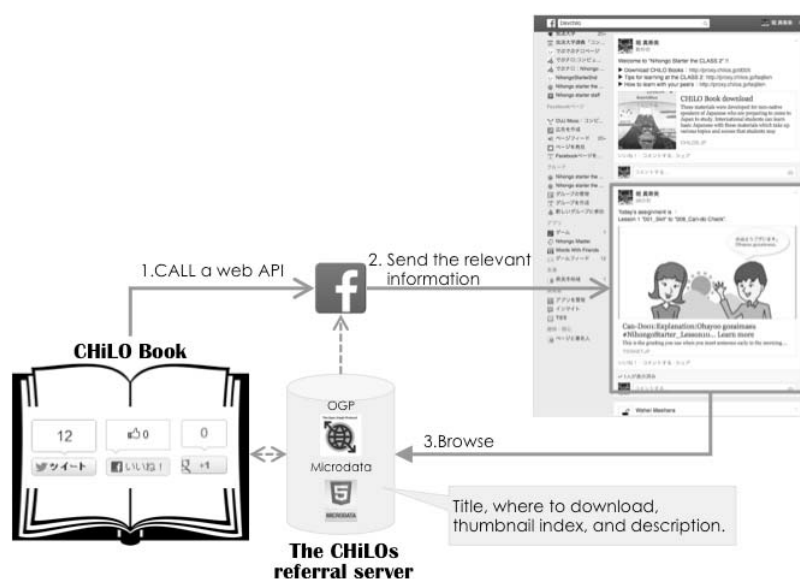


Figure 3. The OGP mechanism in a CHiLO Book.

An example of OGP instructions in a CHiLO Book is shown in Figure 3. A learner posts an article, comment, or question about learning contents to a SNS such as Facebook, Twitter, Google Plus, or even their own SNS through a CHiLO Book. A social network share button for calling a web application programming interface (API) is added to a XHTML file within a CHiLO Book. When the learner clicks “post”, the CHiLO Book sends the relevant information from the CHiLOs referral server to the SNS along with the content to be shared. When another learner sees the posting, he/she can access various

information contained in the CHiLO Book. Thus, learners in the CHiLO Community get the learning materials they want through CHiLO Books and SNS.

### *Comparison with EDUPUB*

The framework of EDUPUB as an e-textbook enables online assessments and learning analytics while including EPUB3 extended Learning Tools Interoperability, IMS Caliper Analytics, and IMS Question and Test Interoperability (Mattson, 2014).

CHiLOs fulfills the same purposes as EDUPUB without using EDUPUB specifications. For example, the CHiLO Badge provides online assessments, whereas the CHiLO Community provides the analytics, social network analysis, and data analysis.

EDUPUB is implemented in JSON, but most e-book EPUB readers do not support JSON with the exception of Radium, which is an open source EPUB reader developed by the IDPF. One of the disadvantages of Radium is that it currently does not support mobile devices such as smartphones and tablets. At present, learners cannot use mobile devices; therefore, a CHiLO Book offers a realistic solution by combining an e-book reader and a web browser.

## **3. Results of Demonstration Experiment**

### *Experimental methodology*

Cyber Campus Consortium TIES (NPO CCC-TIES) developed the Japanese language study contents, called “Nihongo Starter A1” (NS A1) in partnership with Open University Japan (OUJ) and the Japan Foundation.

We started a demonstration experiment of NS A1 delivered as an OUJ massive open online course (MOOC) in November 2013 in cooperation with OUJ and the Japan Massive Open Online Course Consortium (JMOOC). JMOOC “is an organization that was formed in 2013 with the cooperation of Japanese universities and businesses that aims to spread and magnify Japanese MOOCs throughout the country” (JMOOC 2013).

NS A1 is intended as a beginner course and consists of ten CHiLO Books for non-native speakers of Japanese overseas who wish to study in Japan. One CHiLO Book consists of a lesson with 20-25 lecture videos as well as 2-3 online exams. A CHiLO Badge is issued after each online exam is passed.

The experimental approach was as follows. The NS A1 with the ten-volume CHiLO Books set was delivered to commercial e-book sites such as the Google Play Bookstore and the iTunes Store at no charge. At the same time, two new Facebook groups named Class 1 and Class 2 were created for NS A1 to establish the CHiLO Community. Learners from each class applied and could become a connoisseur such as a Japanese language teacher.

Class 1 and Class 2 were opened for 5 weeks respectively. Class 1 was from April 14, 2014 to May 11, 2014. Class 2 was from June 2, 2014 to June 29, 2014. The locations of where to download the CHiLO Book sets were posted to the Facebook groups every week. Connoisseurs attended to learner enquiries. A CHiLO Badge was issued after completing each CHiLO Book and every NS A1 lecture. To facilitate learning, all reference pages were posted in Class 1 at the every week, whereas significant reference pages were posted in Class 2 at the every week.

*Experimental results*

Figure 4 shows learner activities such as the number of CHiLO Book downloads, video audiences, completed quizzes, and badge earnings. Because the CHiLO Books were delivered to commercial e-book sites, the number of downloads was more than the number of participants in the course.

The final number of participants was 1,279, which included participants from 71 countries such as the United States, Mexico, Colombia, Malaysia, Australia, Thailand, and Vietnam. There were 440 participants in Class 1 and 839 in Class 2.

After the first week of both Class 1 and 2, the number of video views sharply decreased. Although the first volume of Class 1’s CHiLO book was downloaded 388 unique users and Class 2’s was downloaded 699 unique users only 44% and 48% of the downloaders viewed the videos, respectively. After downloading the CHiLO Book, many participants failed to watch the video. This means that CHiLO Books may be difficult for some learners to operate because they have to manage both an e-book reader and a web browser at the same time. As a result, only two participants in Class 1 and nine in Class 2 completed NS A1 and received a final CHiLO Badge.

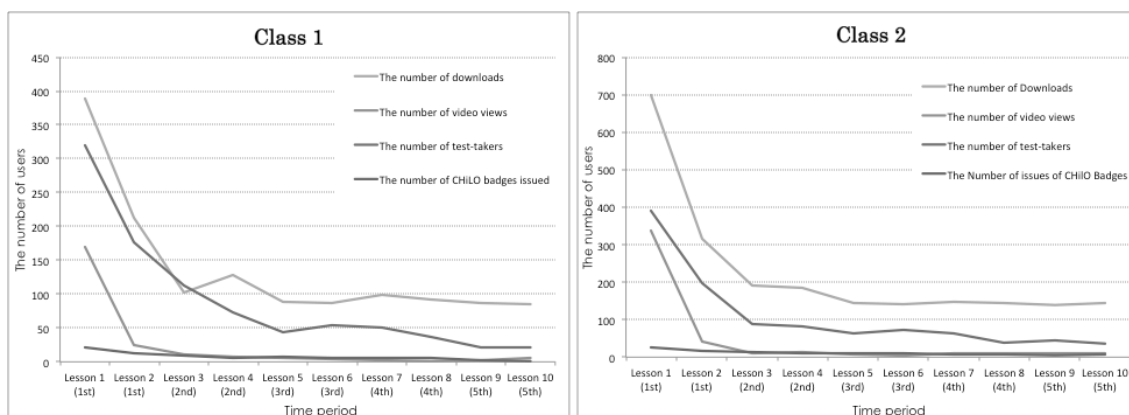


Figure 4. Learner activities.

Figure 5 shows the number of unique users who attempt online exams on a weekly basis. Although there was a slight tendency for those who posted reference information to

attempt online exams in both Class 1 and 2, it was clear that many learners studied at their own pace.

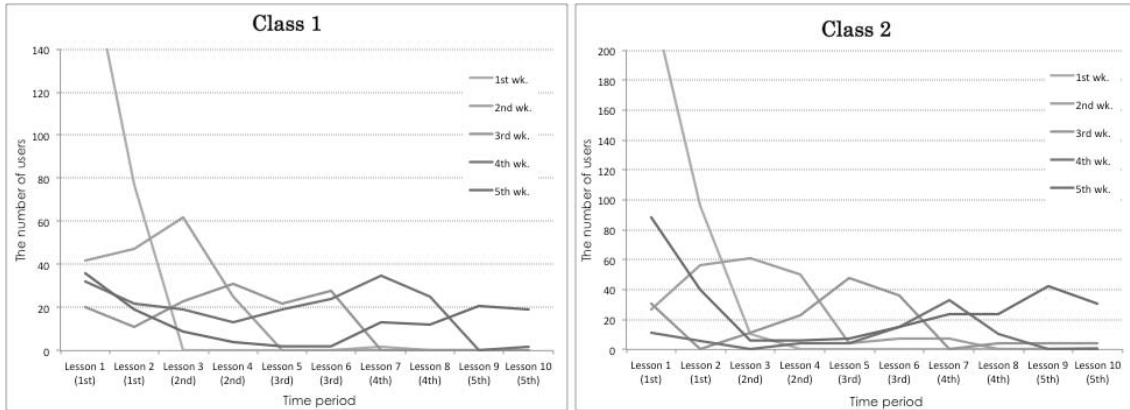


Figure 5. The number of participants who attempt online exams.

Figure 6 shows that the number of learners increased steadily over time. In Class 2, there was a sharp rise in new participants in the last 3 days of the course. There were a significant number of participants, and these results also showed that participants learned at their own pace.

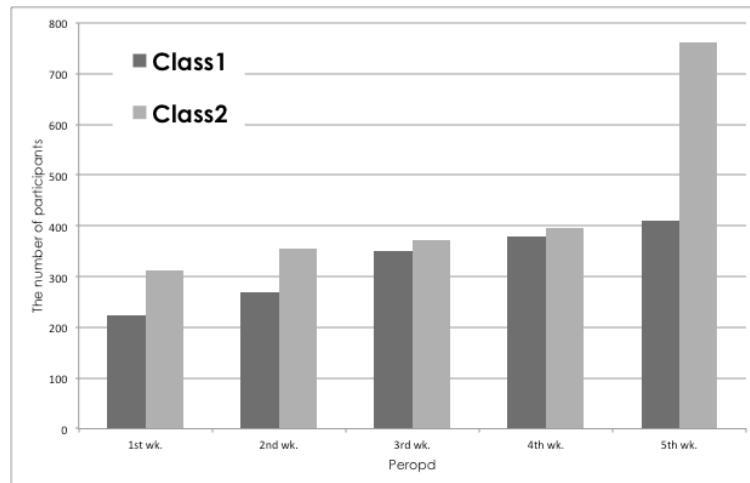


Figure 6. Number of participants joining the course.

Figure 7 shows the number of CHiLO book downloads among the participants. The first volume of NS A1 was the most commonly downloaded book every week. This shows that participants joining even in the middle of the semester still learned from the first volume in the series.

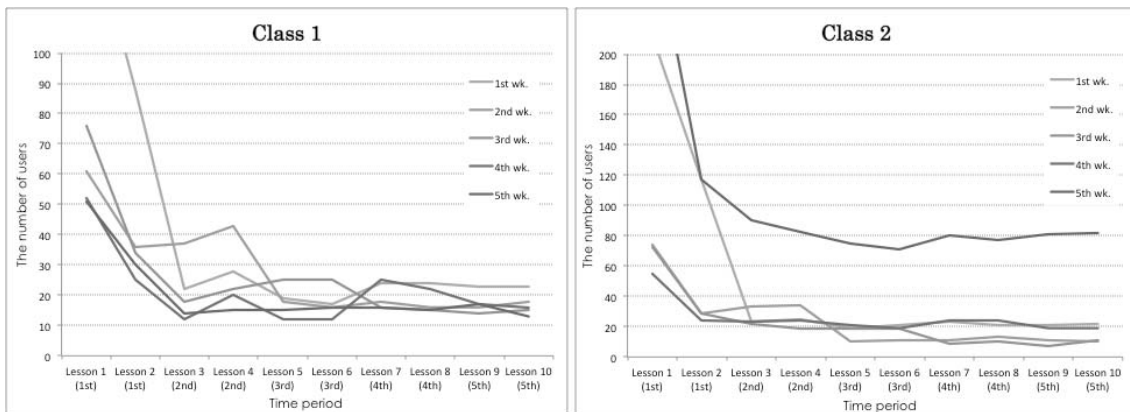


Figure 7. Number of participants downloading CHiLO Books.

Figure 8 shows the video views of the participants. A similar tendency was observed as for the results given above with the greatest number of views seen early in the course.

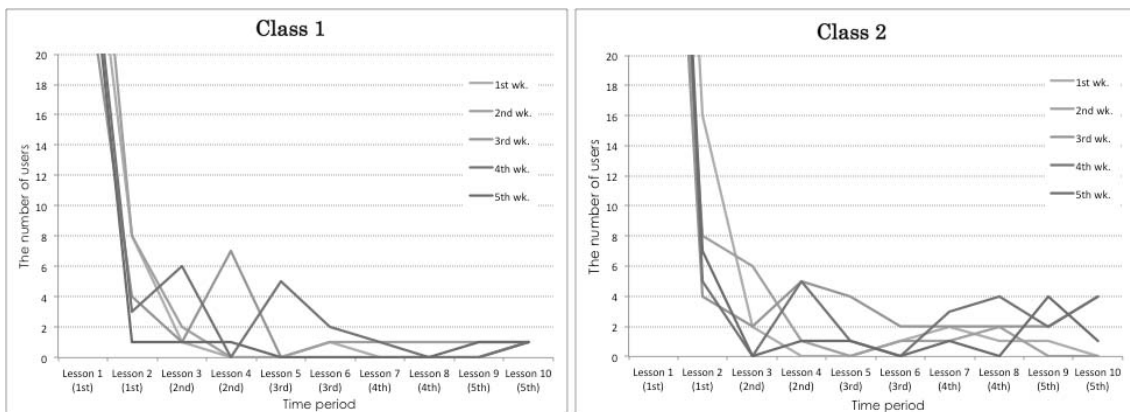


Figure 8. Number of participants viewing videos.

#### 4. Discussion of Experimental Results

Many people asked questions about how to view the e-books or complained about them in comments posted on the Facebook group pages. For example, “I am in Nepal. I am not able to download CHiLO Books,” “iTunes and Google Play are not accessible from Egypt,” and “I downloaded a CHiLO Book, but the EPUB Reader won’t launch.” These postings indicated that Google Play and iTunes are not available in some countries or regions, and not all learners are familiar with using e-books.

As shown in Figure 4, less than half of the learners who downloaded the first e-book did not view the video. Comments from the learners said: “I would like to learn with a video-embedded EPUB e-book,” “It was not good to find that some content was not embedded,” “It took 25 minutes to register with Google Play, change the cookie settings,



install the EPUB reader, and now I can see the video! ... but, there were no videos embedded.” Complaints such as these are really issues with the usability of non-stand-alone e-books that must be used with an external web browser.

Nevertheless, the activity of users who were able to start using the e-books was interesting. They tended to use the learning materials (video, online exams, e-books) of previous lessons in addition to the latest materials that the connoisseurs notified them about according to the course schedule. One possible reason for this may be that some learners learned autonomously without keeping to the predefined schedule, and learners who joined the course later started with the first lessons. This situation could be unique to packaged online courses where you can download the complete course content and learn at your own pace, step-by-step, or all at once.

One of the merits of using Facebook was that the learners’ progress through the e-book readings was facilitated by the connoisseurs’ postings about each week’s lesson. Although information sharing between learners on the SNS was not confirmed, a tutor’s posting in the second week of Class 1 was shared between a good numbers of Facebook users. Because of that, the number of page views increased temporarily, but the number of learners did not increase.

## **5. Conclusion**

CHiLOs are an e-book-based framework in open networks that intend to enhance connections between learners, learning resources, and the community. Since the number of applications and devices that are EPUB3 compliant is limited, we designed CHiLOs to use an external browser for viewing videos and attempting online exams.

Complaints from actual users were issues with downloading e-books and the unavailability of embedded videos. Interestingly enough, learners who were able to start using the e-books tended to use the learning materials of the previous lessons. This tendency could lead to autonomous learning and can be regarded as a merit of the e-book-based framework compared to the usual web-based learning environment. However, the framework is somewhat problematic as there is not yet a way to let learners share their learning experiences with others whose progress is considerably different. The problem is worth considering in our future work.

To address the reported complaints from users, we have also developed a web version of CHiLO Books that are automatically created from the same data files as the EPUB3 versions. With this web version we are able to provide quick and easy learning materials for those who like to learn using web browsers. Along with the EPUB3 version of CHiLO Books, we hope to achieve higher usability for all types of users by refining our CHiLO framework.

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# **Open educational resources in distance learning: Policies and initiatives in Indian universities**

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## **Abstract**

The entire education system is witnessing a sea change by the creation of knowledge societies being enriched by various Open Educational Resources. OERs have emerged as a meaningful symbol of innovative attempts towards achieving easy access to quality education at all levels. The Open Educational Resource (OER) materials are the digitized version of the learning materials that are available freely and openly for learners, teachers and scholars to use and reuse for teaching learning and research activities. All over the world a large number of innovative and open OER initiatives are being taken up. Distance Education in India supports the learning needs of a wide range of learners from diverse backgrounds, economical status and geographical locations. The use of OERs holds great promise of improving the access to and the overall quality of education for the developed as well as the developing countries. It has therefore become critical to use OERs in order to ensure high quality and suitable educational opportunities to the learners with diverse learning needs. This also necessitates the need for establishment of policies and strategies encouraging the development and use of OERs. The OER declaration also stresses the need for the states to facilitate finding, retrieving and sharing of OER. In this context the present paper focuses on the use of various available OERs in the open and distance institutions in India. A significant number of initiatives have been up to support the development and sharing of OERs. The paper highlights the various Initiatives taken up in Indian Universities and educational institutions for promotion and use of OERs. There is need for adoption of policies that enable and encourage the development and use of open educational resources. The paper also presents an analysis of the various issues related to the use of OERs in Distance Education as well as discusses the existing policies and guidelines related to the promotion and use of OERs in India.

**Keywords:** Open Educational Resources, Distance Education, India

## **Introduction**

ICT has provided powerful tools for dissemination of knowledge over a wide spectrum. This makes it extremely useful for improving access and equity in the entire education sector. ICT can be leveraged to complement the formal education system as well as the distance education system at all levels. ODL system in India has made a far reaching impact on the educational scenario of our country by increasing the access to higher

education and providing educational opportunities to vast multitudes of learners left unserved by the formal system. In the ODL system there is a paradigm shift towards collaborative learning with an emphasis on openness and resource sharing through the use of ICT and OERs. The use of OERs holds great promise of improving the access to and the overall quality of education for the developed as well as the developing countries. Therefore, a number of meaningful initiatives are being taken up to embed the OERs into the educational environments of today by Indian universities. There are many issues that must be addressed if OER is to live up to its potential (CED, 2009). There is an urgent need for establishment of national and institutional policies, guidelines and strategies encouraging the development and use of OERs.

### **Open Educational Resources (OERs)**

The Open Education resources (OER) have emerged as a useful means for providing high quality education to the masses. OERs are a global phenomenon and have become significantly important in education systems across the world (Venkaiah, 2008; Rolfe, 2012; Abeywardena, Tham and Raviraja, 2012; Geith and Vignare, 2008). The term OER was first used in 2002 during a UNESCO forum on the potential of open courseware for higher education in developing countries. The William and Flora Hewlett Foundation, defines OER as “teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge.” OER (OECD, 2007) is said to include:

- Learning Content: Full courses, courseware, content modules, learning objects, collections and journals.
- Tools: Software to support the development, use, re-use and delivery of learning content including searching and organization of content, content and learning management systems, content development tools, and online learning communities.
- Implementation Resources: Intellectual property licenses to promote open publishing of materials, design principles of best practice, and localization of content.

### **OERs in Distance Education**

In distance education scenario of today, there is a paradigm shift towards more personalized and collaborative learning. The use of OERs holds great promise of improving the access to and the overall quality of education for the developed as well as the developing countries. The development of OER is mostly funded by foundations like the Hewlett and Mellon foundations and partially by the institutions themselves.

Distance Education in India caters to a wide range of learners with varied learning styles, preferences, with heterogeneous cultural backgrounds, economical status and geographical locations. In India, at present there are 14 open universities - one national university and 13 state open universities. Besides, there are 140 dual mode providers of higher education and twelve open schools. The education scenario in India is facing many problems that need to be addressed. There is a paucity of high quality teachers, inadequate infrastructure, lack of well-equipped libraries and good quality educational

resources. The National Knowledge Commission has recommended increasing the amount of Open Educational Resources (OER) and Open Access (OA) to address these pressing problems. The widespread availability of high quality educational resources is imperative to change the paradigm of teaching for the better and improve the overall quality of education.

### **Policy Initiatives for use of OERs in Education**

In India, the policy framework has laid immense stress on the overall importance of using ICT for improving education. The National Policy on Education, in 1992, emphasized the use of educational technology to improve the quality of education. Indian National Task Force on Information Technology and Software Development constituted by the Government in 1998 came out with an IT Action Plan which stressed on the use of emerging new technologies in education. The Tenth Plan further emphasized knowledge and use of new information and communication technology for ensuring quality in teaching and research. Policy documents such as India Vision 2020 and the 11th Five Year Plan also emphasize the need to create knowledge-based resources (Gupta, 2002).

The National Knowledge Commission (NKC) recommended making use of globally available Open Educational Resources (OER) and Open Access (OA) as a means of radically increasing the widespread availability of high-quality educational resources (Hysten, 2012). Further, the National Mission on Education through ICTs (NMEICT), launched by the MHRD, focused on leveraging ICTs to provide quality, personalized, interactive knowledge modules over the Internet/intranet to all learners in higher education institutions, any time anywhere (Kelly, 2010). To address the challenges in the higher education sector, several government initiatives have been proposed in the Twelfth Five Year Plan. These include extensive use of ICT, shift from input-centric to learner-centric, promotion of innovation and research, and development of virtual labs and open access content repositories.

### **OER Initiatives in India**

In India a large number of meaningful initiatives have utilised ICT to augment the quality of education (Harishankar, Balaji & Ganapuram, 2013). These initiatives aimed at promoting the use of ICT at all levels of education. Some of these are at a pilot stage while others are fully operational. Some of the major initiatives operating at a national level in educational institutions are as follows:

- The Consortium for Educational Communication (CEC) is an inter-university centre set up by the University Grants Commission (UGC). CEC with the help of about 22 Educational Multimedia Research Centres (EMRCs) produces TV programmes on syllabus-based topics. These are archived in a Learning Object Repository (LOR) and the Digital Video Repository (DVR) to provide easy access to these educational resources.
- National Council of Educational Research and Training (NCERT) has made available school textbooks and reference books online through its website to ensure easy and free access by teachers and learners.
- National Science Digital Library (NSDL), an initiative of the Council for Scientific and Industrial Research (CSIR), provides free access to supplementary

curriculum based content to address the information needs of the undergraduate students of science.

- Project Ekalavya is an open source educational initiative by the Indian Institute of Technology, Bombay, for content development in Indian languages. It is an endeavour to provide an interactive platform for the creation, absorption, dissemination and usage of knowledge.
- Project OSCAR (*Open Source Courseware Animations Repository*), is a large repository of web-based, interactive animations and simulations, referred to as Learning Objects (LOs), for teaching various concepts and technologies.
- The National Programme on Technology Enhanced Learning (NPTEL) is a joint initiative of the seven Indian Institutes of Technology (IITs) and the Indian Institute of Science (IISc). It aims to enhance the quality of engineering education in the country by providing easy access to curriculum based video and web courses.
- VASAT, a wing of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), has created open access learning materials on agricultural practices, aimed to promote natural resource literacy.
- The National Educational Foundation, under the National Knowledge Commission, aims to develop web-based common open resources.
- NME-ICT, launched in 2009, and its Web portal — Sakshat — that provides one-stop access to e-content, e-journals and e-books. The aim is to leverage the potential of ICT, in providing high quality personalized and interactive knowledge modules over the internet/intranet for all the learners.
- National Repository of Open Educational Resources (NROER) is a learning repository for open educational resources. The repository offers digital resources such as videos, audio, interactive media, images, wiki pages, and documents, for all school subjects and grades in multiple languages.
- Rai OpenCourseware is an initiative of Rai Foundation, which is a private education provider. It provides learning resources in various disciplines like engineering, mass communications, law, and aviation.
- e-PG Pathshala Project is an initiative of UGC for providing free access to standardized e-textbooks for postgraduate courses in different universities of the country.
- Agropedia is an online knowledge repository for information related to agriculture in India. This national portal, designed as an agricultural Wikipedia provides localized content and hosts wide range of agricultural information.

These initiatives span different levels of education and different types of providers (government, public, private). However, they converge in their attempts to provide access to quality teaching and learning resources (Harishankar, Balaji & Ganapuram, 2013).

## OER Initiatives at IGNOU

The Indira Gandhi National Open University (IGNOU) has emerged as a national resource centre for open and distance learning (ODL), with international recognition and presence. To reach out to the unreached IGNOU has taken certain major initiatives towards the development of interactive multimedia content through web-based platforms. Some of the initiatives taken up at IGNOU are eGyanKosh, FlexiLearn, Education Broadcast.

- **FlexiLearn** is a personal learning space where free learning resources are integrated with a learning management system for anyone who wants to learn, whatever their educational needs and experience. More than 936 open courses are available on FlexiLearn for self guided and self-paced learning.
- **eGyanKosh** is a knowledge repository to store, index, preserve, distribute and share the digital learning resources developed by the ODL institutions in the country. This repository offers online access to around 3000 courses of IGNOU and 2,000 video lectures. The video programmes are provided through a YouTube channel established for eGyanKosh. There is also a wiki for collaborative content generation.

## Issues Related to the Use of OERs in Distance Education

There is an increased interest in the potential of ICT and OERs to extend the reach and provide flexible learning options not only in the distance education institutions but also in traditional universities. In context of India, the extensive developments in the use of ICT in education have facilitated and encouraged the dissemination of OER. However, most of the initiatives are in the nascent stages of development. There a number of issues involved with the development and use of OERs. The OECD study (2007) exemplified certain impediments to the use of OER. These are:

- Technical barriers such as lack of broadband access.
- Economic barriers such as inadequate resources to invest in the required hardware and software.
- Social barriers such as a lack of the skills needed to use technology.
- Policy-oriented barriers such as the lack of clear policy in institutions regarding OER.
- Legal barriers such as the time and expense associated with gaining permission to use.

Lack of awareness about the advantages of OER or skills to use or produce such content or tools are certain other important issues that need to be considered. Some of the crucial issues related to the OER movement in distance education scenario are:

- i). Lack of good quality content: There is a lack of good quality digital resources. There is a strong need to use good instructional design which is well adapted to the technology being used.
- ii). Sustainability of OER Initiatives: Most of the OER projects receive external funding from foundations, universities or government agencies. Apart from

finances, sustainability also involves issues such technical maintenance, content models and scaling possibilities.

- iii). Need for standardization: There is a need for standards and guidelines to ensure and guarantee the quality of OER materials being developed.
- iv). Quality Assurance: Another critical issue is the quality of the information and knowledge contained in the OER and the trustworthiness of its source.
- v). Lack of awareness of Copyright Issues: The educators are willing to share their work but there is a lack of awareness of the copyright laws which they find cumbersome to understand.
- vi). Knowledge and use of open licensing: Open and free licenses are crucial for the successful practice of OER as they enable sharing, reuse and redistribution of the open resources. At present the educational resources of various OER initiatives in India are not available under the Creative Common Licenses.

There is a strong need to ensure the availability of localized content in keeping with the regional milieu. There is need for a strategy to deliver OER in a wider range of disciplines and regional languages, as well as support to allow greater adoption among teachers and students (Kumar, 2009).

## **Conclusion**

The OER phenomenon has revolutionized the way information is used and disseminated. It has led to an emergence of creative participation in the development of digital content in the entire education sector. The universities are gradually increasing the use of ICT and multimedia in the teaching and learning process. In India the support of government policy framework has encouraged the use of ICT and OER in educational institutions. A number of innovative initiatives aimed at providing easy access to educational resources have been taken up. Many Open Universities have taken up initiatives to make their educational resources available in the public domain. However, OER practices in India are currently in an initial stage of development and a number of issues need to be considered. But the potential for growth of the OER phenomenon in India cannot be denied and more such initiatives should be encouraged in the open and distance learning systems in India.

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# **Transformation of conventional DL courses into BL courses: Use of multimedia and ID strategies**

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## **Abstract**

Distance learning provides flexibility for learners with time or physical constraints. Distance learners can study at their own pace with the aids of various media technologies. Although print-based instructional materials are still playing an important role in many distance learning courses, blended learning, which integrates online with traditional face-to-face class activities, is getting more and more popular and well-received.

Blended learning represents a shift in instructional strategy, and the use of instructional design strategies to transform print-based materials into online components of blended learning course is worth exploration.

The present study aims at evaluating the instructional design strategies and display of multimedia components of four blended learning courses, which are originated from print-based distance learning courses, adopting instructional design principles in multimedia learning (Mayer and Moreno, 2003). Multimedia components in each of the blended learning courses consist of printed learning materials, online materials, video clips and PowerPoint presentations, video lectures, discussion forum and wiki.

Students' perceptions of the effectiveness of using 5 multimedia components to enhance their learning will be examined and evaluated. The objectives of the study are twofold: (1) explain how the instructional design helps learners to learn effectively, and (2) evaluate the usefulness and satisfaction of the multimedia components. Qualitative data drawn from focus groups and online survey from students who have taken these four courses provided useful comments on the design and on their learning experience.

Findings show that among the 5 multimedia components, two of them are considered to be widely useful, and the other three depend on various factors. Therefore, the use of different combination of multimedia components should be carefully considered and planned.

**Keywords:** instructional design, multiple representations, blended learning, multimedia, online components

## **Introduction**

By definition, distance learning (DL) is “planned learning that normally occurs in a different place from teaching and as a result requires special techniques of course design, special instructional techniques, special methods of communication by electronic and other technology, as well as special organizational and administrative arrangement” (Moore & Kearsley 1996, p.2). Traditional DL materials are print-based self-study materials with which learners can study on their own. However, some research has shown the attrition rates of various distance learning programs are high (Lau, 2005; Kember, 1989; Woodley, De Lange, and Tanewski, 2001; Parker, 1999; Simpson, 2004). In the Open University of Hong Kong (OUHK), the retention rates for a cohort of newly enrolled students in 2005 were 72.9%, 46% and 40% in the subsequent three semesters (Yuen, Lee and Tsang, 2011). According to the same study, one of the major reasons for dropout is that students found “too many text materials to read and the courses were too difficult”, which indicates one of the deficiencies of the conventional delivery system of distance learning.

Conventional DL materials in OUHK are written by highly qualified local and international subject experts and experienced teachers. The comprehensive study units have incorporated with textbook readings, activities, self-tests and supplementary readings so as to provide a thorough learning experience for students. However, Precel, Eshet-Alkalai and Alberton (2009) argue that this kind of course delivery model creates a gap between the course developer, instructor, and the students and therefore has a negative effect on the learning process and on student satisfaction (Bates & Khasawneh, 2007; Guri-Rosenblit, 2005; Swan, 2001). Just like many other DL programmes, students in OUHK are provided with face-to-face tutorials but these are not compulsory. That means students could complete their DL course with or without attending the classroom tutorials provided.

With help of Internet and rapid advancement of technology, students in the OUHK are provided with online learning support. With the Online Learning Environment (OLE), students can access the self-learning materials online and communicate with their tutors and course coordinators by emails or discussion forum. However, in the conventional DL courses, all these online support is relatively limited.

Hauske (2007) suggests that effective learning materials should be able to activate and motivate learners, initiate learning processes, and foster understanding. Simply providing documents or text-based materials is not sufficient. In line with this argument, Brown and Voltz (2005) point out that the strength of online learning over print-based DL is the ability to employ multiple media types to present ideas and concepts. They emphasized that multimedia materials, such as text, images, and sound and video, could be combined to create learning materials that suit

learners with different learning styles and promote a higher degree of interactivity in the learning process.

To further enhance the effectiveness of text-based learning materials and students actual learning experience, incorporating multiple media types through online learning platform is one possible solution. In this “blended learning” (BL) approach, print-based instructional materials are still playing an important role in a course, many other online components are supplemented, on top of traditional face-to-face classes. Previous researches investigating the impact of blended learning show that students have better academic performance when compared with traditional distance learning (Castelijin & Janssen, 2006; Dowling, Godfrey & Gyles, 2003). A study of López-Pérez et al (2011) shows that the use of blended learning has a positive effect in reducing dropout rates and in improving exam marks. Under blended learning, students can be more motivated and better involve in the learning process, thereby enhancing their commitment and perseverance in their study (Donnelly, 2010; Sharpe et al., 2006; Woltering, Herrler, Spitzer, & Spreckelsen, 2009).

Therefore, it is valuable to investigate the way to transform the existing print-based DL courses into BL courses.

### **Use of Multimedia and ID Strategies**

To successfully implement the DL-BL transformation, the use of appropriate instructional design strategies is crucial. How to synthesize the best possible blend of various media on the basis of existing self-instructional materials is not an easy task, especially to keep a right balance of cost and quality.

In online learning materials, there are various kinds of media and representations, such as text, graphs, tables, audio, video, animation, and interactive dynamic visuals. Sarlin, Cezikturk, and Hughes (2003) point out that multiple representations are important for learning. There are different learning styles among students. Some of them learn effectively by reading text, and some of them prefer audiovisual materials. Student engagement also varies according to different forms of representations available at the course site. Therefore, multiple representations can help maximize learners’ ability to retain information and learner engagement (Chapman, Selvarajah & Webster 1999; Syed 2001). In the transformation, the text-based DL courses are changed into multiple representations to suit the level, subject content, and the needs of learners.

Meij and Jong (2006) conclude that there are several benefits of multiple representations. One of them is that it helps learners build abstractions that may lead to a deeper understanding of the learning content. Ainsworth (1999) also asserts that learners will be motivated to learn by novel

forms of representations such as animations, videos, linked pictures and so forth.

Mayer and Moreno (2003) points out that meaningful learning can be better attained when effective instructional design strategies are followed. They propose 9 ways to reduce cognitive load in a learning environment containing multimedia resources. For example, avoiding a huge amount of complex materials at one time, providing signals or cues to help learners analyzing the material. Another way is to include an outline, or to add headings in a long section, to help learners better organize a piece of text. Breaking up the content into small pieces of information by point-form is also an effective way of presentation.

Learning motivation is a mix of beliefs that causes learners to initiate a learning activity and put in effort to achieve learning. Kawachi (2002) argues that learning motivation could be intrinsic and that learners tend to follow a deep-learning approach associated with better retention, application, and reflection. The use of video presentation can capture and maintain learner attention and therefore promote learning. Zahn, Barquero and Schwan (2004) also suggest that linking video to learning facilitates knowledge acquisition because of the combination of different presentation formats.

Video clips, animation, PowerPoint presentation with audios and online interactive learning activities, should all be thoughtfully integrated in a blended learning course. Other online components, such as asynchronous discussion forum and wiki collaborative learning tasks are also beneficial to blended learning courses. These components are able to facilitate students' high-order analytical thinking skills, and promote their interactions and learning engagement (Cole, 2009; Hughes, 2009; Judd, Kennedy and Cropper, 2010; Kennedy et al., 2009; Mokoena, 2013).

As a pilot run, a batch of 4 business DL courses in OUHK are transformed into BL courses. The instructional design strategies adopted is multiple representations, and the effectiveness of this BL approach is also investigated.

### **The BL courses in OUHK**

The present study is a preliminary study which investigates the effectiveness of using multiple representations in the blended learning courses. The objectives of the study are twofold: (1) explain how the multiple representations in BL helps learners to learn effectively, and (2) evaluate the perceived usefulness and students' learning satisfaction of various blended learning components.

The relevant new BL courses are four undergraduate business administration courses, namely: Introduction to Management; Introduction to Marketing, Introduction to Accounting I, and

Introduction to Accounting II. These four courses originally were delivered in conventional DL mode, while print-based study units are the major learning materials. Students were also provided several face-to-face tutorials and online learning support, but the online components are limited to text-based study materials and discussion forum. Basically, students studied the study units on their own pace.

These four courses are transformed into BL courses. Each of the blended learning courses is composed of several online components, including:

- Text-based materials with interactive activities and exercises — Since it is difficult for adult learners to read lengthy text on the screen, the learning materials are chunked into smaller blocks. To enhance the readability of the online materials, paragraphs with complex concepts and long sentences are simplified or re-structured. Each section consists of a number of interactive activities and self-test exercises, with immediate feedback, so as to consolidate students' understanding.
- Video clips and PowerPoint presentations — Difficult concepts or topics with heavy texts were replaced by video clips or PowerPoint presentations with audio sound tracks. Short quizzes are also embedded into the video presentation to evaluate students' learning.
- Video lectures — Some OUHK learners, owing to their own working schedule or traveling, might not be able to fully attend the F2F tutorial sessions. In the BL courses, eight F2F tutorial sessions remain unchanged but they are also recorded and uploaded into the online learning platform, and these become the “video lectures”. Students who miss the tutorials or would like to review the tutorials can go online.
- Discussion forum — In order to promote interactions between students and their tutors, and among students themselves, discussion activities are encouraged in the asynchronous discussion forum. It is widely believed that such kind of discussion can enhance students' high order thinking skills.
- Wiki collaborative learning tasks — Students are divided into small teams and work on given tasks through the wiki tool. It promotes collaborative learning as well as critical thinking.

These five major online components were incorporated into these four courses. Basically, the adoption of the 5 components is based on the nature of learning content, and the most suitable components are selected after considering their appropriateness and feasibility.

## **Methodology**

The 4 BL courses are conducted in April semester in 2013. At the end of the semester, an online survey was conducted. The questionnaire was administered to students of the four blended learning courses. The respondents were recruited via email invitation on a voluntary basis. A total of 115 respondents completed the questionnaire, and the return rate was 11.4%. The survey result is mainly on the students' perception of the 5 components in the BL courses. Students perceived usefulness and their satisfaction on the 5 BL components are investigated by a 5-point Likert scale. The Analysis of the questionnaire survey on the students and their qualitative feedback will be illustrated in this paper.

Besides the survey, five students from each of the 4 courses are invited to join a focus group interview. Through a number of in-depth semi-structured questions, students are asked their opinions on the use of the 5 BL components.

## **Findings**

Students' perception on the usefulness and level of satisfaction of the 5 BL components are shown in Table 1. Under a 5-point Likert scale, a mean score of 3 represent a neutral opinion, and a mean score of 5 is strongly positive. Among the 5 BL components, all of them are perceived as useful components for their learning. The top two useful components in students' eyes are video lectures (mean = 3.87) and online materials with interactive activities/ exercises (mean = 3.54). Both of them have a mean score higher than 3.5, which represents a comparatively stronger positive opinion. The other three components, however, have a means core less than 3.5 which shows that students find them only marginally useful.

Table 1 Students' perception of usefulness and satisfaction of blended learning components

Blended Learning Components	Perceived Usefulness	Satisfaction
	Mean (SD)	Mean (SD)
1. Online materials with interactive activities/ exercises	3.54 (0.83)	3.64 (0.76)
2. Video clips and PowerPoint presentations	3.28 (0.85)	3.44 (0.81)
3. Video Lectures	3.87 (0.78)	3.70 (0.74)
4. Discussion forum	3.25 (0.87)	3.15 (0.81)
5. Wiki collaborative tasks	3.21 (0.95)	2.96 (0.81)

It is worth noticing that the mean score of video clips and PowerPoint presentations (mean = 3.28) shows that students only find it slightly useful to their learning. However, qualitative comments collected from focus groups find the same component very useful, and it will be further discussed in a later section. The discussion forum and wiki collaborative tasks are both rated as less useful components, and these were perceived as insignificant to learning (mean scores are 3.25 and 3.21 respectively).

When looking at the satisfaction level, the data reveal that it is quite similar to that of perceived usefulness. Students were satisfied the most with online materials with interactive activities (mean = 3.64) and video lectures (mean = 3.70). Discussion forum and wiki collaborative tasks get the lowest scores, which reflect that students' interaction and engagement in the online learning platform is not satisfactory. The means core of satisfaction for wiki collaborative tasks is below 3 (mean = 2.96), which shows that students do not satisfy with the online collaborative tool.

The online survey gives an overall rating of the 5 BL components, and students' opinions towards the various components are collected by focus group interview. The following are students' opinion after integration and consolidation.

*Online materials with interactive activities/ exercises*

Respondents indicate that the online materials provide them with flexibility in learning, and they can learn anytime and anywhere. Instead of hard copies of DL materials, which is quite heavy, they can now study in their office with a computer, or in a restaurant with a mobile device (such as iPad). One of the advantages of online materials is that it provides instant feedback for the learning activities or self-tests. Students also find the materials in online learning platform are presented in smaller chunks, and the key points are highlighted with



coloured text, so they can grasp the key points of the materials more easily. The embedded links also give students a quick and easy way to look for further details, such as definitions, references or even a useful article.

#### *Video clips and PowerPoint slides with audio presentation*

Although the respondents do not take the video clips and PowerPoint slides with audio presentation very useful in the online survey, most of the respondents in the focus groups agree that online video clips can help better understanding the main concepts. One of them says, “I can learn faster because I find the audiovisual materials help me understand the idea more easily. When compared with studying with the full text materials, I am more motivated and will not easily fall asleep.”

Another respondent also agrees that video clips and PowerPoint presentations are useful to him, and he can grasp the main points, understand the complex concepts in just a few minutes. “The short video is very comprehensive and useful, and it saves me so much time as I don’t have to go through the plain text,” he says.

One student reports, “The PowerPoint slides with voice presentation impress me a lot. They are not very long and it takes me 5 to 10 minutes to understand an abstract and difficult concept.” Some respondents indicate that they find the sign posting features, such as arrows and keywords in the video clips or PowerPoint slides presentation very helpful as they help them to focus on relevant key concepts. Some of them claim that they do not have time to go through all the video clips and PowerPoint presentations, but they will watch the presentations of the topics that they do not understand. These save them a lot of time.

#### *Video Lectures*

Video lectures are recorded F2F tutorial sessions by tutors, and the uploaded videos are prepared especially for those who is absent from the tutorial sections. Some respondents, especially who cannot attend all the tutorials provided, find video lectures very useful. Since the video lectured are conducted by their own tutors, students can have “a sense of belonging”.

One of the respondents explain, “I find the video lectures very useful for me, since I am very busy at work and cannot attend the tutorial sessions frequently. I can attend the tutorial any time I want. Sometimes, I watch some of the video segments repeatedly when the topics are very difficult to me.”

Another respondent shares the same view but adds, “The tutor elaborated some of the topics in details and provided more daily lives examples and make me understand the concepts more easily. These video lectures in fact are far better than those in the video clips or PowerPoint

presentations incorporated into the online content because the tutor provides more authentic examples for illustration. These are not found in the study units or textbooks. All these are very useful for me to understand the concepts and cases.” One respondent reports that the video lectures can help him revise the study units before examination, since the tutor usually summarizes the whole unit in the tutorial.

However, a couple of the respondents express that video lectures are more suitable for those abstract or complex concepts. If the tutors simply repeat what they have in the study units, these video lectures are not very useful for them.

#### *Discussion forum*

To facilitate learners’ high-order thinking and their analytical thinking, two to three discussion questions are designed for each unit. Students are encouraged to participate in the discussion actively. One student points out that the discussion questions are in fact useful for him to examine the issues critically and present his viewpoints in a logical flow with good English. He adds,” However, it is very time consuming to discuss an issue in the forum, and the discussion does not count in my assessment. Therefore, I am not keen on posting my opinion or comments in the discussion forum.”

One of the respondents claims that she is disappointed with the low participation rate of the discussion forum. She explains, “I put up my opinions on the discussion board and wait for some feedback from my classmates. However, I have waited for over one week and only one or two replies show up. I do not like this kind of discussion since there is no instant response. To me, F2F discussion sessions are much better, as I can really discuss with my classmates and tutor. When we discuss a case in the class, they would at least give me some responds when I look at them!”

#### *Wiki collaborative learning tasks*

Wiki collaborative learning tasks are incorporated in student assignment. Students are required to post their answers on the wiki, comment on a fellow student’s answer, and then respond to others’ comments on their answers. Most respondents agree that reading others’ work on wiki could broaden their perspectives and enhance knowledge and experiences. However, they found this task very time-consuming, especially in a very tight schedule. Therefore, quite a number of them are not satisfied with this requirement. One respondent states, “I am novice to wiki interactions and do not get used to this kind of collaborative tasks. Sometimes, it is difficult for me to have a teammate directly comments on my postings.”

Some respondents do have different views on wiki collaborative learning tasks. A student points out, “I know I have to do some research and prepare my postings so as to fulfill the requirement. When I go through the process of information searching, I learn something and become eager to post my insights for comment. I find the wiki tasks quite interesting and they enhance my analytical thinking. However, it takes time to work on it but other classmates may not give comments on my posting immediately. I would say I am not very satisfied with this type of assignment.”

One of the respondents indicates that she does not want to go through the long postings made by her classmates because most of them are clumsy and their comments or perspectives are similar to each other. Some suggest that the wiki collaborative tasks are more suitable for the subjects like management and marketing, but not accounting subjects, which focuses on figures and procedures.

### **Discussion and conclusions**

The present study examines students’ perceived usefulness and satisfaction of the 5 BL components. Survey study suggests that students perceived all the 5 components as useful in their learning, but the video lectures and online materials with interactive activities/exercises are considered to be the most useful in their learning and students are most satisfied with them. The discussion forum and wiki collaborative tasks, however, are both marginally useful, and students even find wiki task slightly unsatisfied.

Parallel to the online survey, focus group interview also finds the immediate feedback and answers of activities and self-test in online materials were helpful for them. Wickersham and McGee (2008) state that one of the most important instructional design strategies is to align learning activities to ensure integrity across the course design, and these activities would enhance deeper learning for online learners.

According to Choi and Johnson (2005), video-based learning is more effective than the text-based learning for learners to memorize the content, and key points and phrases displaying on the screen can highlight important concepts. The present study also supports this argument. Interviewees in the focus groups claim that video clips and PowerPoint presentations also promote learning easier, facilitate understanding, and motivate students to learn. Although the result from survey does not in line with that from interview, the video clips and PowerPoint slides presentations are at least useful for some learners.

With respect to video lectures, interviews show that video lectures facilitate students’ memorization and understanding of the content. Most respondents report that video lectures provide them with great flexibility in learning and also valuable in their revision for

examination. Some respondents find video lectures useful and satisfactory because they find their own tutors conducting them. This offers them a sense of belonging and connectedness in distance learning. This response is consistent with Manning (2005), who argues that the human and personal features of voices can convey to listeners a richer understanding about the speakers and make learners who are studying online courses feel less isolated.

Although the discussion forum and wiki learning tasks are not well received in both the survey and interview, some respondents still recognize the usefulness of these communication tools which can enhance analytical thinking and collaboration. The major complaint is that they are all very time consuming tasks. It is therefore suggested that the two components should be used purposefully, and students themselves should be aware of the purposes of these tasks, if arranged. Making participation on these tasks part of the assessment would be an effective way of promoting them.

Findings of the present study indicate respondents' perceived usefulness and satisfaction on the 5 BL components are verified to various degrees. Blending of different media components in online learning courses can, to certain extent, enhance students learning and their motivation. These results support the reported benefits of using multiple representations suggested by Meij and Jong (2006). However, the 5 BL components should not be treated as a dose of panacea which can be used in blended learning courses without careful consideration and design. While online materials with interactive activities/ exercises and video lectures are widely accepted, and they can be used as core components in the BL courses. The other 3 components should be adopted with careful planning of instructional design strategies. Subject nature, assessment requirements, and students' readiness in using discussion forum or wiki, should be seriously considered when designing a blended learning courses. A simple adoption of multiple representations in BL learning might not be the most effective way of delivering learning materials. In fact, Mayer and Moreno, (1998) remind us that learners may have difficulties in relating different representations and determine the main line of the materials because they might be sidetracked by some of the representations.

Further studies are suggested to examine the effectiveness of different combinations of the various BL components, so the instructional designers could have a simple reference for courses from different subjects and natures.

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# Research on the implementation of the strategy of blended learning in open and distance learning

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## **Abstract**

*Blended learning is a new learning method that comes into being in education, particularly in educational technology after the reflection on web-based learning. It integrates traditional learning with digital learning or web-based learning to have complementary advantages to achieve the best results of learning outcomes and learning programs according to the needs of learners and learning contents. The application of the blended learning in open and distance education (ODL) plays an important role in the improvement of the quality of instruction. Guided by the theory of ODL and based on the basic content of the blended learning, the paper analyzes the status quo of the blended learning in ODL and explores current learning models by comparing the similarities and differences among different teaching models, different media and different teaching environments. It also expounds the basic theory, the design features and the technical solutions of the blended learning in ODL, expecting to provide reference for other similar studies.*

**Key words:** *blended learning, ODL, model, strategy*

## **1. The Connotation of blended learning**

### **1.1. The theory of blended learning**

Blended learning is a new way of learning, which appeared after the traditional classroom such as face-to-face teaching and online learning was considered in educational field, especially in educational technology field. At present, it is widely used in the field of school and enterprise training, and becomes a hot topic. Some scholars believe that blended learning is the combination of face-to-face learning and online learning; some scholars believe that blended learning is a combination of various teaching media; others believe that blended learning is a combination of face-to-face learning, autonomous learning and online learning. The definition by Professor Curtis Bunker, American Indiana University, in "blended learning handbook" is: combination of face-to-face teaching and online learning with computer aided. Specifically, blended learning is the way that combining the advantage of traditional learning and online learning, and complement each other.

## **1.2. The Significance Applying blended learning to Distance Open Education**

the distance education With online learning as the core in the process of continuous development formed their own unique teaching mode "combination of learning and guiding", which emphasizing combining the subject position of students and the leading role of teachers. Applying blended learning to distance open education is of great significance to improve the education quality of teaching:

1. In favor of satisfying the individualized learning needs. Personalized learning means that the learning needs of learners are different from others. According to the concept of lifelong education learning in distance open education, the differences of learning demand between learners are obvious, some students' discretionary time are plenty, but the desire of classroom learning is intense; some students' flexibility study time is very less, but need to complete through the network learning; some students tend to choose learning manner according to the personal interest and course difficulty. Therefore, one of the advantages of applying blended learning in distance open education is that the learner could adopt various suitable learning methods according to their actual situation.

2. In favor of helping learners to accept new technology. distance open education based on three communication network environment that are computer network, satellite television network and telecom network, has the significant technical characteristics of digital interactive and multimedia. The application rate of asynchronous technology in distance open education is the highest, blended learning combine traditional and new technologies flexibly, learners choose learning manner including different technical means according their own characteristics, provide learners full select space and accommodate time. Learners need to constantly updated technology skills reserves, and gradually accepted and master new technology in the learning process.

3. In favor of helping the learner to learn reflection. The object of distance open education is adult, the students' autonomous learning is the basic form, with the theory of "student-centered, teacher-lead" as the core, blended learning give learners more autonomy. In addition to learning and exchanging in the classroom, learners could also reflect deeper through online learning after class, could also reflect together with other learners or teachers. In addition, the blended learning saves the spending time on the traffic, could also invite more experts to participate in the teaching activity. In conclusion, applying blended learning in distance open education is the most effective way of learning.

## **2. The implementation strategies of blended learning in distance open education**

### **2.1. Integration framework of blended learning in distance open education**

Distance Open education is a remote education from strict definition, in which interaction is the important teaching behavior, and it graphically reflects the characteristics and advantages of distance open education. Interaction refers to the meaning of "an event occurred between the learner and the learning environment, including the exchanges between learners and teachers, learners and learning, also including the mutual communication and interaction between the learners and the various resources." Therefore, the interaction in distance open education must have a role in three aspects: first is to realize the communication between learners and teachers; second is to solve the encountered problems of the learners in learning; third is established benign interaction between the learners, teachers and teaching media. Accordingly, it is shown that the three factors affect blended learning mode included teaching media, learning content and learning methods, and the three are affected by the interaction (Figure 1). Different learning content need different learning styles to be completed, and the implementation and selection of learning way is closely related to the teaching media.

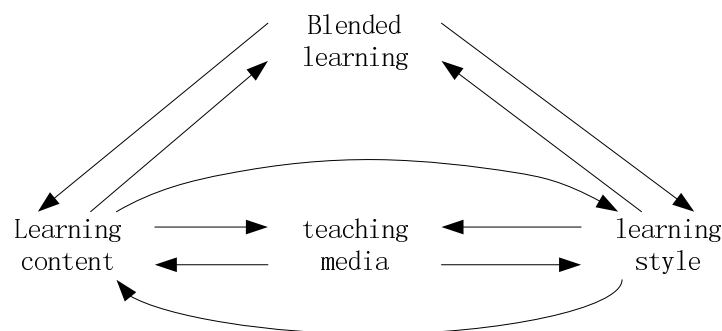


Fig. 1 the interaction relationships between the three factors that affect blended learning

Blended learning aims at providing specific learner the appropriate learning content through appropriate learning methods in appropriate time. Therefore, the key to apply blended learning in distance open education is to make the transfer between the study effect and the study plan to reach optimization.

## 2.2. The implementation points of blended learning in distance open education

1. Combination of learning content. Learning content refers to that, under a certain teaching ideas, around a theme of teaching activities, form relatively stable, systemic and theoretical teaching scope. Blended learning could provide various learning content for learners, make learning content of different structural forms could complement each other. Learners could choose strong structural knowledge system, and could also choose to learn general knowledge, and could also choose to study professional technique in some subject field. In this way, blended learning not only conducive to the training of the concept of lifelong learning, but also to enable learners to know "why", "how to do", so that when the learners acquire the system knowledge, they could access to the latest developments, and achieve optimal learning effect.

2. Combination of teaching media. Teaching media is the intermediary which link teachers and learners, and is an important carrier of learning content. Blended learning is mainly refers to face-to-face teaching and online learning. Therefore, it is helpful to better complete the learning effect that understanding the advantages and disadvantages of different media under different learning situations.

Table 1 the characteristics of teaching media

		textbook	blackboard-writing	model	wireless	record	slide show	film	TV	video tape	computer
expressive force	spatial character			√			√	√	√	√	
	time behavior	√	√		√	√		√	√	√	√
	motion characteristic							√	√	√	√
Reappear force	Immediately reappear		√			√				√	√
	Afterwards reappear	√		√		√	√	√		√	√
interface	Infinite contact	√			√				√		
	finite contact		√	√		√	√	√		√	√
Participate ability	Emotion participate				√	√		√	√	√	
	Behaviour participate	√	√	√			√				√
Controlled ability	Easily control	√	√	√		√	√			√	√
	difficult control				√				√		

3. Combination of learning methods. Some learning methods, such as online learning, learning based on TV and radio, learning based on video conference, learning in the virtual reality scene and face-to-face learning, will bring benefits to the part of the learner. For example, in the areas that the Internet did not cover, television teaching or paper books may be their best way of learning. Therefore, the learners could effectively choose which way to complete learning according to their characteristics.

### 2.3. Technique scheme of blended learning in distance open education

The implementation of blended learning in distance open education mainly depends on the implementation of technology. According to the strategy that implement blended learning in distance open education, the various situations, which affected the teaching quality, which encountered in process of implement distance open education, could be avoided by adopting appropriate technical scheme and combined with the corresponding teaching activities. Table 2 is the technical scheme that implement blended learning in distance open education, the practice shows that in the present conditions, these technical scheme is able to achieve.

Table 2 technical scheme applied blended learning in Distance Open Education

<b>technical proposal</b>	<b>Technical characteristic</b>	<b>Suitable situation</b>
Bidirectional audio transmission	Collaborative support by Satellite and computer network	Real-time tutoring; real-time experimental guidance
On demand streaming audio and video	The playback progress Could be controlled; timing play text information in video	The students' Autonomous Learning
virtual reality	Strong interactivity, true image, real-time feedback	Teaching by Observation; need hands-on experiment
speech recognition	Read voice, and recognize text through microphone input	Language teaching and training
Real time and non real time communication tools	Real-time transmit image-text and sound-image; non real-time transmit image-text	Teacher tutor; students discuss and exchange
multi-media	Picture, text, sound, animation and video in network transmission	The students' autonomous learning; network teaching; training and examination
LMS Teaching management system	Has the strong accessibility, adaptability, affordability, persistence ability	Used For the links such as the development of educational resources, teaching implementation and teaching evaluation

The appearance of blended learning not only increased vitality for distance open education, but also brings new opportunities for the reform and development of distance open education. In order to implement blended learning in distance open education, we should comprehensively considerate various implementation elements, and use appropriate methods to design the optimal learning mode in distance open education.

# **The development of blended learning support for an introductory calculus course at a distance learning institution**

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**Abstract.** Introductory Calculus is a basic and compulsory course for the new students of Faculty of Mathematics and Natural Sciences. Data of students' grades in the fall semester of 2013 showed that from 263 students who took the course exam, about 56 got grade E, which is categorized as fail, and 97 got grade D, which is categorized as borderline to fail. The big numbers of students who got E or D in the course was attributed to the less skill of the students in self-regulated learning especially in introductory calculus. Many of the students were fresh graduate of high school that do not have the skills to survive in the distance education system yet. The Mathematics department plan to develop a blended learning support program to develop student skills in learning the course and to survive the distance education system. The course already provides online tutorial which is not compulsory. It is planned to add the component of video conference to the online tutorial, to help the students feel as if they learn in a face-to-face classroom situation whereby they can meet with a teacher that can help them figuring out the solution to the difficulties they experience. The video conference is supposed to help the students to do in depth learning and develop skills necessary for the course. The video conference will be conducted four times to accompany the 8 times of online tutorials. The support program is within 8 weeks. This article will describe the planning and development of the blended learning support program based on the A (analysis) D (design) D (development) I (implementation) E (evaluation) model of instructional program development. It is hoped that the development can result in a model of student learning support for college mathematics in a distance learning systems.

*Keywords: blended learning, video conference, online tutorial, introductory calculus*

## **INTRODUCTION**

Universitas Terbuka (UT) is the only higher education in Indonesia that exclusively conducting the teaching and learning activities utilizing the distance learning system. For the past 10 years UT enriched the teaching and learning activities, which is mainly through the print materials called Buku Materi Pokok (BMP), with the component of online tutorial for each course offered. The learning materials are furthered enriched by the provision of instructional video, web supplements, online exam exercises, and Internet TV. All of these materials can be accessed by the registered students. The library also has a website call virtual reading room, whereby students can access the BMP or other learning materials.

The catalogue of UT programs has guidance about how to study in a distance learning system. The students are expected to actively regulate themselves to study the BMP, access and interact in the online tutorial, do the exercises and formative test in the BMP, and access the materials available in the UT website. This catalogue is given to each registered student. Students can also access the catalogue from the UT website.

Apparently, many new students still experience difficulties in learning, especially Mathematics courses, in a distance system. UT already established provision of many kinds of tutorial, such as face-to-face tutorials that are compulsory for students registered in the School Education, and the online tutorials available for each course offered by UT. Other forms of tutorial are the broadcasted TV and radio programs, webinars, and through print media such as newsletter and UT magazine named Komunika. A survey conducted for Mathematics students' preference of tutorial modes revealed that they like face-to-face tutorial. However this kind of tutorial cannot be offered if the number of students are less than 20 and, only be offered, if any, at the 37 regional offices. The Mathematics students in each regional office are only five or less, if any. The problem of finding the Mathematics college teachers to give the various Mathematic courses also be a hindrance in offering the face-to-face tutorial, except if the students want to pay for the provision of the tutorials.

Introductory calculus has to be taken by all of new Faculty of Mathematics and Natural Sciences students who are not transferred from other higher institutions. Since the data showed that the performance of more than half of the students taken the course are just at the level of D or E, the Department of Mathematics created the intervention of combining the online tutorial of the Calculus course with the video conference in an approach that named as blended learning support.

## LITERATURE REVIEW

The review will describe the ideas about Introductory Calculus delivered by utilizing distance learning approach.

### *Introductory Calculus*

The following is the explanation about the term Calculus given by Flashman (2000)

“..a "calculus" is a method for systematically determining a result, for arriving at a conclusion, or for calculating an answer [1]. In this sense there are many calculi, such as the calculus of propositional logic, the calculus of set operations, the calculus of probabilities, etc. But when someone talks about "The Calculus," be it "differential" calculus, "integral" calculus, or the calculus of infinite series, the reference is usually to "The Calculus of Isaac Newton (1642-1727) and Gottfried Leibniz (1646-1716)." This calculus provides **procedures for solving problems in the analysis of change**: determining rates of change, predicting the amount and explaining the quality of change, and connecting the concepts of change with the language and symbolism of algebra that describes change. This calculus also develops tools for solving problems of geometry: determining a line tangent to a curve or finding the area of a planar region, predicting the shape and explaining the graphic qualities of a curve, and connecting these geometric concepts to the language of algebra that describes geometry.

Since its early development, calculus has grown more important. Its analysis has been applied in many contexts: the physical sciences and engineering, the life sciences, economics, probability. In fact calculus has uses in practically any area of study where change is important. It provides a theoretical basis as well as a

practical tool for exact and estimated solutions to problems in almost every scientific discipline.”

In the Indonesia situation the causes of low performance in introductory courses are lack of mathematics foundation in high school education to prepare students to survive the college mathematics, for major and non-major alike; wrong teaching methods and lack of qualified teachers that demotivate students to study mathematics, and insufficient time students allotted to studying the course. So in this intervention the authors will integrate the diagnostic test, to analyze the entry behavior of students in term of prerequisite skills needed for the introductory course, to the blended learning support to help students overcome the difficulties in learning the important introductory calculus course.

Many studies show that there is a relation between performance in introductory college level Mathematics and Sciences and student retention and graduation from the STEM (Sciences, Technology, Engineering, and Mathematics) fields (Moore, and Shulock, 2009, p.4). Successful completion of a first –year math course (earning a C or better), is one of many factors that increased the probability of re-enrolling, and reduced the chances of student transfer or dropout (Herzog, 2003, 2005). Students who performed marginally in math and science during their first semester or first year of college were more likely to withdraw from the STEM curriculum than students who performed well (Gilmer, 2007).

It is worth the effort of a higher education institution to create an intervention strategy to prevent students’ dropout or stop out that is appropriate to the students characteristics, especially at the freshman and sophomore level.

### *The Teaching of Introductory Calculus*

Summary of the research findings about strategies employed by higher education institutions to prevent potentials loss of students because they dropped out from STEM majors or from the college entirely – especially through the improving their performance in foundational mathematic courses, are as followed (Hanover Research Report, 2011). Encouraging the student centered learning methods to promote active, cooperative, and inductive learning and prevent passivity. Since most STEM student already very familiar with the latest development in technology, integrating technology into the mathematic instruction can engage students with course materials, the teacher and other students. Another teaching method is peer-led team learning (PLTL) that involves the use of small group workshops associated with specific objectives and guided by a trained peer leader. Still another one is emphasizing the real-world application of math concepts as well as making connections between foundational materials and more advance topics.

Strategies employed in the delivery of online tutorials are as followed. Development in learning management systems and online course delivery methods make it possible for teachers to choose the ways to control the release of course content, according to specific criteria. Study by Fisher et al (2014) showed that the conditional release of course materials is particularly beneficial for students with lower overall grades



compared to those with higher overall grades, since they reported of being more engaged in the courses. Fisher et al (2014) describe that the criteria for the conditional release of course materials, i.e.: it should be reasonable and realistic, it is best used with activities or assignment that lead to the mastery of the course content, and it is best used when course content progresses linearly or builds on itself (p 230). The courses surveyed by the authors are upper level online agricultural economic course, online general education college algebra course, and a face-to-face elective mathematic course for at risk students.

In online courses, interactivity, especially between student-instructor, plays greatest role as an important component of satisfaction and persistence of the online learners (Croxtton, 2014). Types of online interactivity vary according to the types of learner, which is undergraduate students regard the student-student interaction higher than the graduate or the professional ones (Croxtton, 2014, p 317). Student-content interaction is also strongest student-level predictor of student satisfaction in online courses (Croxtton, 2014, p. 315). Decreased social interactivity can lead to lowered satisfaction among students and increased feelings of isolation, disillusionment, and greater risk of dropping out of the online environment.

Kelton (n.d.) suggests strategies in teaching face-to-face mathematics course that can be modified to the online course. The strategies are: building rapport with students and encourage them to study within the pace allowed by the institution while still considering their individual differences. The teacher should be approachable and patience as a teacher, reward hard work, distinguishes mathematical achievement from intelligence, that is never belittling a student's difficulties in studying the course. In teaching an introductory mathematics course, the teacher should ensure that all students have the necessary prerequisite skills. It is advised that the teacher should progress slowly in the first sessions of the course and respond kindly to questions.

These advices can be implemented in the online course at the video conference sessions or be modified to be implemented at the online session.

Dibbs, Glassmeyer, and Yacoub (2013) suggest a strategy called precision teaching in delivering an introductory calculus course. Precision teaching is an instructional model that applies formative assessment to gain information on what topics are understood by the students as well as ones that they find difficult. With the information, the instructor can adjust the course to integrate supplementary materials or intervention strategies most beneficial to students. Their research suggests that formative assessment could (a) be used by instructors to make decisions to productively use class time, and (b) improve study skills for the students, which will lead to higher achievement and possibly better understanding in calculus (Dibbs et al, 2013, p 3). The findings of the qualitative research showed that students who passed the course felt that precision teaching made a huge different in their ability to understand the materials at the pace the course run (Dibbs et al, 201, p 12)

There are many website suggest about how to improve student motivation and improve college student retention and learning. One of the web sites named Ed Tech Dev is a blog by Doug Holton. The blog describe two courses that made a difference in student

retention, i.e.: learning and motivation strategies offered by Ohio State University and a compulsory calculus course for engineering students. Furthermore, he suggests additional strategies such as: making the course relevant and engaging to students, applying active learning, meaningful faculty-student interaction, reaching out and helping struggling students, coaching students, offering orientation program, teaching study skills, time management, and other student success strategies, discussing with students about their attitudes, motivation, and career goals, mentoring program by peer or faculty, developing learning communities, teaching for understanding not just for the test, keeping track of students, and supporting learners online,

The suggestions from the literature, about teaching introductory calculus, will be integrated into the blended learning program in various ways. The motivation and learning strategies, to survive the distance education system, are already available at and accessible from the UT website. The student-teacher/content/student interaction will be accommodated in the online tutorials and video conferences sessions, the diagnostic of prerequisite skills will be given in the online tutorials and discussed in the video session, and the difficulties students encountered in learning the calculus will be solve in the online tutorials and the video conference.

## **OBJECTIVES**

The development of the blended learning support aims a) to provide an alternative to the types of tutorial that can be developed and implemented in UT, and b) to develop learning support to improve student performance in the introductory calculus as well as to prevent dropout.

## **METHODOLOGIES**

The development of the blended learning support and the improvement of the existing online tutorial for the introductory calculus course will be following the ADDIE model for educational/training program development. ADDIE stands for Analysis, Design, Development, Implementation and Evaluation.

At the analysis stage the authors conducted the preliminary analysis of: student performance in the introductory calculus course at last year (2013), the relevant literature to gain insights about what should be integrated into the program, available relevant existing materials to be integrated to the program, the schedule and people that should be involved in the program.

At the development stage the author developed the competency map and a table of outline tutorial with the time

This paper describes the analysis and development stages of the blended learning support program which will be implemented for 8 weeks in September to October 2014.

## RESULTS AND DISCUSSION

### *Analysis Stage*

The rationale for developing the blended learning support for the introductory calculus course are as followed.

In the first semester of 2013 the number of students enrolled and took the final exam were 236. This number are much more than the number of students registered for other mathematics courses which are usually 10 to 50 students per course. This course has to be taken by students in the Mathematics, Statistics, and Biology departments, hence the large enrollment in this course.

The students were dispersed at the 32 regional offices all over Indonesia. The number of students in each office were 1 to 59 students. The regional office with the most number of students is the one in Jakarta, the capital of Indonesia.

There is no face-to-face tutorial for any mathematics course since the number of students who wants this service are less than 20 per course as required by UT for the regional office to offer this service. The online tutorial is the only tutorial mode for students who take any mathematics course offered by the Department of Mathematics.

The introductory calculus course is supposed to be taken in the first semester a student registered at UT, so this course is a foundation course. As described by Croxton (2014), the interaction between student- instructor plays the most important role in student persistence in the online course. If students cannot overcome the difficulties in the first online courses they take, they are prone to not enrolled to similar course or to dropout from the Mathematics, Statistics or Biology program.

The blended learning support for the introductory calculus course is supposed to provide improved learning support to help students learn the course, and created an illusion of face-to-face help through the video conference component of the program. The video conference makes it possible to students to observe the teacher and other students discussing the course and hopefully learn from the interaction.

### *Design Stage*

The authors developed the competency map as seen in Appendix. The outline of topics to be covered in each of the components of the blended learning support is described in Table 1.

**Table 1: Outline of the Blended Learning Support of Introductory Online Calculus**

Time of The Tutorial (Week)	Tutorial Topics	
	<i>Online</i>	<i>Video Conference</i>
0	<p><i>1 – 7 September 2014</i></p> <p><b>Introduction, describing:</b></p> <ul style="list-style-type: none"> <li>- The mechanism of the blended tutorial program, online and video conference (vicon)</li> <li>- Learning and Motivation Strategies</li> <li>- Course Syllabus, Competency map and Concept Map as an advance organizer to give students the overall picture of the course</li> </ul>	<p><i>10 September 2014</i></p> <p>Detail Explanation and Q&amp;A about:</p> <ul style="list-style-type: none"> <li>- The mechanism of the blended tutorial program, online and video conference (vicon)</li> <li>- Learning and Motivation Strategies</li> <li>- Course Syllabus, Competency map and Concept Map as an advance organizer to give students the overall picture of the course</li> </ul>
I	<p><i>01 - 07 September 2014</i></p> <p><b>Interaction 1</b></p> <ul style="list-style-type: none"> <li>- Set Theory</li> <li>- Real Number System</li> <li>- Group Assignment 1</li> </ul>	
II	<p><i>08 – 14 September 2014</i></p> <p><b>Interaction 2</b></p> <ul style="list-style-type: none"> <li>- Function</li> <li>- Limit Function</li> <li>- Group Assignment 2</li> </ul>	
III	<p><i>15 -21 September 2014</i></p> <p><b>Interaction 3</b></p> <ul style="list-style-type: none"> <li>- Continuity</li> <li>- Group Assignment 3</li> <li>- Individual Assignment 1</li> </ul>	<p><i>17 September 2014</i></p> <p>Discussion/Q&amp;A about topics covered in week 1 – 3</p>
IV	<p><i>22 – 28 September 2014</i></p> <p><b>Interaction 4</b></p> <ul style="list-style-type: none"> <li>- Derivative</li> <li>- Group Assignment 4</li> </ul>	
V	<p><i>29 Sept – 05 October 2014</i></p> <p><b>Interaction 5</b></p> <ul style="list-style-type: none"> <li>- Advance Derivative</li> <li>- Group Assignment 5</li> <li>- Individual Assignment 2</li> </ul>	
VI	<p><i>06 – 12 October 2014</i></p> <p><b>Interaction 6</b></p> <ul style="list-style-type: none"> <li>- Graph Drawing</li> <li>- Maximum and Minimum</li> <li>- Group Assignment 6</li> </ul>	<p><i>08 October 2014</i></p> <p>Discussion/Q&amp;A about the topic covered in week 4 – 6</p>

Time of The Tutorial (Week)	Tutorial Topics	
	<i>Online</i>	<i>Video Conference</i>
VII	13 – 19 October 2014 <b>Interaction 7</b> - Differentiable functions - Group Assignment 7	
VIII	20 – 26 October 2014 <b>Interaction 8</b> - Integral - Group Assignment 8 - Concluding the topics covered from week 1 - 8	22 October 2014 Discussion/Q&A about topics covered in week 7 - 8

### *Development Stage*

All the learning materials for the blended learning program already available in the website of Universitas Terbuka. The authors already repackaged the materials for the video conference and modified the materials on the online tutorials by linking it to the relevant materials in the institution website. The language in the learning materials is Bahasa Indonesia.

### *Implementation Stage*

The implementation of the blended learning Support for the Introductory calculus will be conducted from September first until October 26 2014. The results of the implemented staged will be reported when the first author presents the paper in the AAOU conference.

### *Evaluation Stage*

The evaluation of the program will be conducted from the analysis stage to the implementation stage, by observing the interaction in the online and vicon component of the program and revise the program as long as it can be done. The end program evaluation will be conducted by utilizing survey method to the students, tutors, developers, technicians, and administrators at the regional offices about what works and what doesn't work related to the program. The evaluation of result of the students learning will be conducted after grades are publishised, usually in the middle of December. Students grade from the first semester of 2014 can be compared to students grades from the first semester of 2013 to observe the impact of the program.

## **CONCLUSION**

A blended learning support program is developed based on ADDIE model for an introductory calculus course offered by a distance learning institution. The blended learning support is supposed to help students to study the introductory online course and experience enjoyable learning process and result so that they can continue to register in

the next semester. The program integrated the various components that had been proven to help the students studying in a distance mode utilizing online tutorials and video conference, to help them develop the self-regulated learning ability while still provide them opportunity to get help through the online and vicon tutorials. This paper described the analysis to the development stages of the program. The implementation and the evaluation results will be reported at the time of the presentation of this paper by the first author.

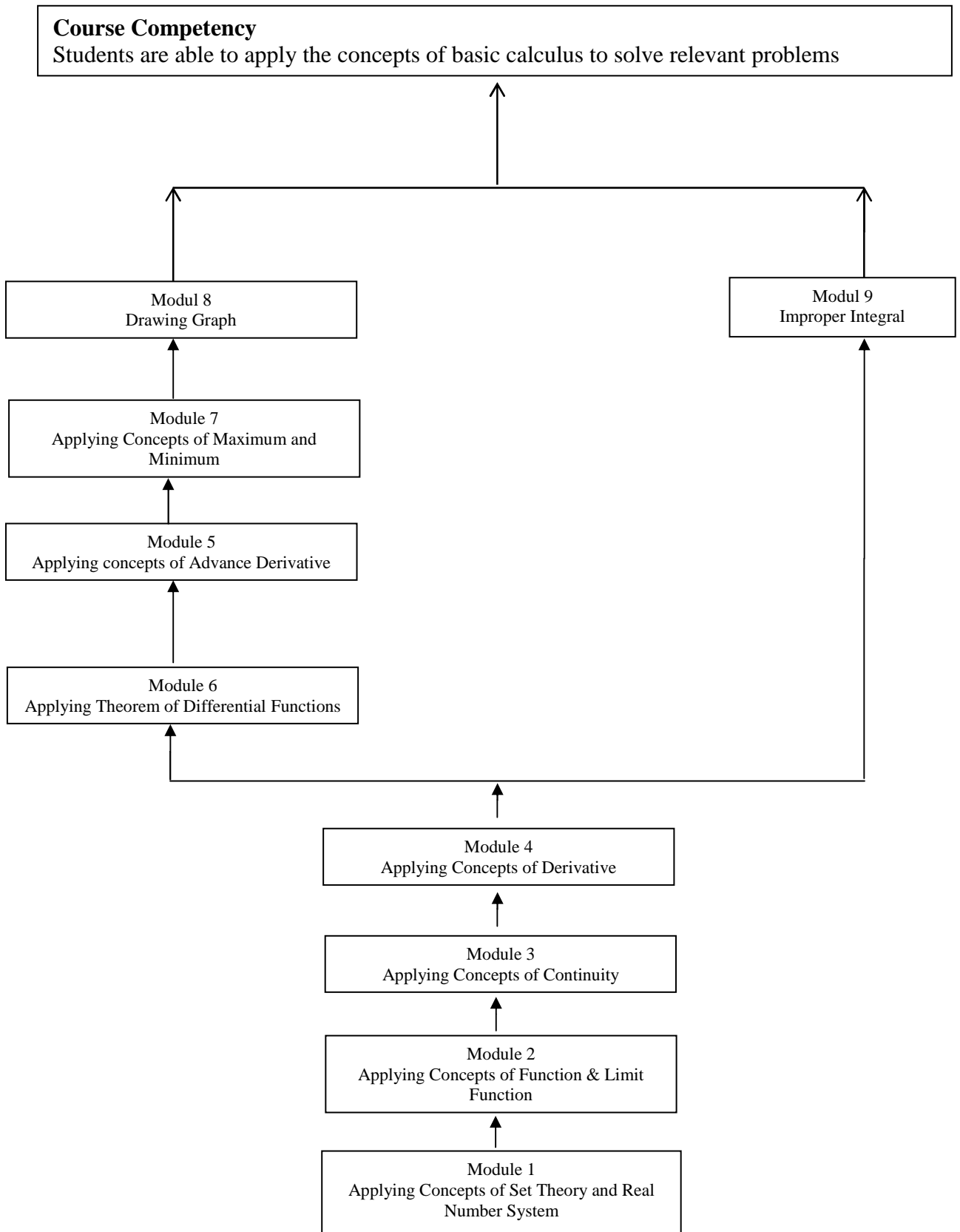
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Appendix : Competency Map

**Introductory Calculus Course**





# **The use of web-based communication tools for enhancing collaborative learning experience**

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Keywords: *Collaborative Learning, Group Project, Teaching and Learning*

A number of web-based communication tools are now available and students can freely gain access to them. With the use of such social media tools, the communication between student members and that between the students and their supervisor/tutor could be enhanced. These tools can enhance the collaborative learning experience of students undertaking group projects. The use of instant messaging and web-based collaboration tools involved in group project work of undergraduate students is studied in this paper.

## **1. Introduction**

According to the Office of the Communications Authority (2013) (The Government of Hong Kong Special Administrative Region), there are more than 17 million subscribers in Hong Kong. The mobile subscriber penetration rate is about 240% which is very high in the world. The use of mobile digital devices (such as smartphones) is very popular among undergraduate students in Hong Kong. Many local undergraduate students possess their own smartphones for communication purpose. Besides text messaging (SMS) and electronic mail, instant messaging (IM) such as WhatsApp and Facebook are very popular communication tools. Other common IM tools include WeChat™ and LINE™ are available in the market. Yue (2014a) examines the students' reaction to the use of a typical IM tool in supervising his dissertation projects. Yue (2014b) further his work on the measurement of student engagement aspect.

The advantages of Facebook group become increasingly popular. Unlike IM tools, Facebook group allows the posting of many other types of files. This is more flexible than IM tools in facilitating group project discussion. Students can easily access the Facebook group using their mobile devices. When a member posts some messages/files at the Facebook group wall, the other members will get a notification for that. Many existing online teaching platform systems adopted in many local universities do not provide such feature.

In many universities, undergraduate students might be required to take part in some group projects during their study. Group projects usually involve one teaching staff

member and two or more students. The use of web-based communication tools can enhance the communication among these students as well as that between students and their project tutor or supervisor. In this paper, the use of both WhatsApp IM group and Facebook group facility in tutoring some group projects are explored. The focus is on the side of tutor-student interaction. The project tutor is positioned as a “member” of the WhatsApp IM group and Facebook group (“closed” group) for each project group of students.

## **2. Relevant research**

### **Collaborative learning**

Cooperative learning is a concept related to collaborative learning though there are some differences as discussed by Barkley *et al.* (2005). For cooperative learning, it requires students to work together on a common task, sharing information and supporting one another. The teacher plays the active role of expert with knowledge and authority (Flannery, 1994) during the classroom session. The teacher decides on the group learning tasks, manages resources and monitors students’ learning (Cranton, 1996, Smith, 1996).

In contrast, collaborative learning occurs when students and teacher work together to create knowledge (Matthews, 1996). Bruffee (1993) points out that collaborative learning wants to avoid having student become dependent on the teacher as the authority on either subject matter content or group learning process. The teacher does not monitor group learning, but acts as a member in the group with the students. The role of teacher is more as the peer of students. Collaborative learning is more appropriate for university students.

Relating to collaborative learning, Goodsell *et al.* (1992) discuss that problem-centered instruction based on case study is widely used in professional or university education. A case is a story or a description of a real life situation/company that sets up a problem for the students to analyze and resolve. The case method of teaching usually involves small groups of students to tackle cases in class or in study group sessions.

### **Interactions in collaborative learning**

Moore (1989) distinguishes between learner-content interactions, learner-learner interactions, learner-instructor interactions in the group project context. In a paper, Paulus (2005) relates interactions to learners in the distance teaching and learning context. The individual reflections of group project experience and peer evaluations of individual group members are emphasized. It is important that members of a group show mutual respect to each other. If all members rated each other with the highest

possible rating on the peer evaluations, reflecting the fact that members have participated equally in the group project.

### **Benefits of collaborative learning**

Johnson *et al.* (1981) discuss that collaborative learning can lead to more successful achievement than either individualized or competitive learning experiences. There are models of collaborative learning such as consensus group, peer tutoring, collaborative project work, writing peer review and consensual response to lectures. Moreno (2005) considers collaborative learning as an important learning model and students can benefit academically and socially when working together to achieve a common goal. Positive interdependence can arise from the interactions among the participants by having learning outcomes beneficial to all group members.

### **Instant Messaging Communication**

For undergraduate dissertation supervision situation in which one-to-one communication between the supervisor and his/her student, Phillips & Pugh (2000) list out some expectations that research students have of their supervisors. As many IM tools are now available in the market, Yue (2014a) points out that supervisors are now made more “available” (in terms of time) and “friendly” (in terms of giving feedback) to students. Kovalik & Hosler (2010) consider the positive impact of using text messaging on university teaching, and find that students react positively to receiving text messages. The questionnaire used by Kovalik & Hosler in their study consists of 13 questions. These questions are studied by Yue (2014a) in the dissertation supervision context and in this paper.

### **IM communication in collaborative learning**

Contreras-Castillo *et al.* (2004) point out that instant messaging increases collaboration among course participants and reduced students’ feeling of isolation. In a later paper, Contreras-Castillo *et al.* (2006) also point out that informal interactions in educational environments have positive effects on learning. Hrastinski (2005, 2006) studies the impact of instant messaging on student participation and points out that students who adopt instant messaging in a distance learning course had a higher level of participation than those who did not adopt.

Shen *et al.* (2007) indicate that instant messaging can greatly support group collaboration by facilitating group work discussions. Shen *et al.* (2007) consider the notion of “we-intention” which is the intention to participate in a group to perform act in which the participants perceive themselves as members of the group. They study the “we-intention” of using instant messaging for group collaboration. We-intention emphasizes collective agreement and commitment involved in the performance of a group behavior. Shen *et al.* (2007) point out that the we-intention to using instant messaging for collaboration are affected by attitude, group norm and social identity. In a

later paper, Shen *et al.* (2008) compare asynchronous learning technology tools such as electronic mail and discussion forums with synchronous ones. Shen *et al.* (2008) conclude that instant messaging has some advantages that are especially suitable for task planning, scheduling, coordination and group discussion in educational settings. Shen *et al.* (2008) further point out that instant messaging contains some unique features that can support students for online group project discussion.

### 3. Methodology

The target participants of this study are five groups of undergraduate students (with four students in each group) who are working separately on a live project in their final year of study. The degree programme was offered by a British university in co-operation with the School of Continuing and Professional Education (SCOPE) of City University of Hong Kong. The author is the project tutor of all five groups of marketing students over the period from February till May 2014. The live project lasts for one semester of 15 weeks. The live project enables students to work in a group on a project in collaboration with a business or not-for-profit organization. Students need to research and present realistic proposals according to the given development, issue or problem. The students are expected to develop skills on business report writing, business presentation skills, self and peer assessment of teamwork, research and problem solving.

The performance of an individual student is assessed on three components: (i) a final group project report; (ii) a group oral presentation in which each student will need to participate; (iii) a peer assessment of the student done by the other members in the project group. The assessment of project report and oral presentation are done on a group basis (all members of a group receive the same oral presentation and project report marks). Each group works on a different marketing-related topic with an outside organization. Both the project tutor and the outside organization staff representative will assess the performance of the students on the above-mentioned assessment components (i) and (ii). For each student, assessment component (iii) is based on the peer assessment done by the other members of the group for that student.

During the whole 15-week project period, there are scheduled weekly tutorial classes for the project groups. In addition, there is electronic communication between the project tutor and students done using social media like WhatsApp and Facebook. Such communication include: (1) reminders of coming meeting details (such as agenda, date, time and venue); (2) confirmation of work required from student for the coming meeting; (3) group announcements made by the project tutor; (4) feedback on queries arising from matters discussed or to be discussed; (5) sharing of reference materials; etc. Throughout the project period, electronic mails were also exchanged between the project tutor and students on issues relating to the project.

For each project group of students, group facility was set up at both WhatsApp and Facebook. Participation in those groups is completely voluntary. The project work emphasizes on student-centred learning and team-working. Students are expected to make their own arrangements to meet regularly as a group, and also meet with the outside organization contact and with their project tutor. In fact, the students are responsible for the management and successful completion of the project.

A measuring instrument in form of a questionnaire (see Appendix) was developed. The questionnaire consists of two major parts. The first part of questionnaire is the same as that used by Yue (2014a) relating to the use of IM tools and the views of respondents in using IM in teaching and learning. The second part of the questionnaire consists of questions relates to the use of Facebook group facility. The students' feedback is collected through a paper-based questionnaire survey during the last tutorial class. The peer assessment and overall assessment results of students obtained from administrative records after the conclusion of the group projects. The possible relationship between these results and the students' final performance on those group projects is studied.

#### **4. Results**

In the present study, a questionnaire survey was conducted during the last meeting with the students. The collected data was coded in electronic form and analyzed using the statistical software SPSS.

##### **(i) Student usage of instant messaging**

Based on the questionnaire data collected, all respondents indicated they possess a smartphone for own use. All respondents have used the WhatsApp IM tool in the past three months. 45% and 50% of respondents indicated that they used WeChat and LINE respectively. Regarding the usage of IM tools, half of the respondents indicated that they are heavy users for more than three years; 20% between two and three years; 25% between one and two years and only 5% below one year. About 95% of respondents answered that WhatsApp is the IM tool used most often in the past three months.

40% of respondents answered that they spent more than 3 hours using IM each day. The percentage of respondents spending less than one hour is 20%, 1-2 hours 5% and 2-3 hours 35%. Half of the respondents answered that they communicated with 6-10 persons using IM tools each day. The percentage of respondents contacting less than 5 persons is 35%. 15% of respondents indicated that they contact more than 15 persons using IM each day. It was found that the persons that the respondents usually contacted are: "Family members" (10%); "Friends" (100%); "Classmates" (10%).

The reasons that explain why IM is used more often than email are: “Quicker to use IM than email with my smartphone” (85%); “Can communicate with receiver simultaneously” (70%); “IM includes the functionality of email” (35%). The reasons that explain why respondents prefer to receiving IM messages (those sent from supervisor) rather than email or Web-based teaching platform are: “Quicker to receive IM messages than email or Blackboard announcements” (80%); “More convenient to receiving messages using smartphones” (85%); “IM tools provide alerts on receiving new messages” (35%).

**(ii) Use of group instant messaging**

All respondents are aged 18-25. Six of the twenty respondents are male students while the others female. The average scores for questions AQ10-AQ21 for all twenty students are listed collectively and under different sex are summarized in Table 1. Most of the respondents agree with the statements very positively that the average score for most of the statements are far above the middle value of 3. The highest score corresponds to the statement that “IM messages from instructor is good to obtain course information”, followed by “IM is good way to communicate with instructor”.

**Table 1.** Average score values for Questions AQ10-AQ21 grouped under sex  
(M=male, F=female).

<i>Statements</i>	<i>Overall mean</i>	<i>Standard deviation</i>	<i>Mean (by sex)</i>
AQ10. IM is a good way to communicate with instructor	4.10	1.21	3.17 (M) 4.50 (F)
AQ11. Receive useful information through IM messages	3.90	1.29	3.67 (M) 4.00 (F)
AQ12. Will follow up IM messages using computers if needed	4.00	1.17	2.83 (M) 4.50 (F)
AQ13. IM messages from instructor is good to obtain course information	4.15	1.09	3.33(M) 4.50 (F)
AQ14. Receiving IM messages from instructor is normal to me	4.05	1.03	3.50 (M) 4.31 (F)
AQ15. Frequently replied to instructor on receiving IM messages	3.65	1.04	3.33 (M) 3.79 (F)
AQ16. Received the right number of IM messages from instructor	3.85	1.14	3.33 (M) 4.07 (F)
AQ17. Initiated instant messages to instructor at least once during 1-2 weeks	3.55	1.15	2.67 (M) 3.93 (F)
AQ18. Receiving IM messages from instructor help me to stay up-to-date with the course	3.95	1.18	3.17 (M) 4.31 (F)
AQ19. Instant messages is useful in an educational setting	4.05	1.10	3.33 (M) 4.36 (F)
AQ20. Receiving instant messages is a positive aspect of this course	3.68	1.20	3.17 (M) 3.92 (F)
AQ21. IM is useful in the teaching and learning process	3.94	1.06	3.67 (M) 4.08 (F)

\*\*\* The high Cronbach’s Alpha coefficient of 0.972 suggests that the scale scores for questions AQ10-AQ21 are reasonably reliable with high extent of internal consistency needed in the measurement (Green & Salkind, 2003).

**(iii) Use of Facebook group messaging**

Regarding the usage of Facebook group messaging, about 53% of the respondents indicated that they are heavy users for more than three years; 37% between two and three years; 5% for both between one and two years as well as for below one year. 16% of respondents answered that they spent more than 3 hours using IM each day. The percentage of respondents spending less than one hour is 47% , 21% for 1-2 hours, and 16% for 2-3 hours.

About 42% of the respondents answered that less than 5 persons are involved in each online group. 37% of the respondents said that 6-10 persons are involved in their online group. 5% and 16% of respondents indicated that their online group involves 10-15 persons and more than 15 persons respectively. It was found that the persons that the respondents usually communicated using online group are: “Family members” (11%); “Friends” (68%); “Classmates” (42%).

The reasons that explain why respondents use online group facility are: “Can communicate with more than one group member conveniently” (58%); “Can share files/documents more conveniently than instant messaging tool such as WhatsApp” (84%); “Can share files/documents more conveniently than email” (63%).

It can be seen from Table 2 that the mean scores for questions BQ8-BQ13 are high with a value of around 4. The average score of BQ8 is higher than that of BQ9 indicating that students prefer to use Facebook group facility among themselves than that with their project tutor. There is a clear difference between the male respondents’ mean scores and those of the female respondents. The male mean scores are always lower than those of female respondents. The difference can be attributable to the gender difference between male and female students involved.

**Table 2.** Average score values for Questions BQ8-BQ13 grouped under sex

(M=male, F=female).

<i>Statements</i>	<i>Overall mean</i>	<i>Standard deviation</i>	<i>Mean (by sex)</i>
BQ8. Using online group facility is a good way to communicate course information with group members.	4.16	1.17	3.50 (M) 4.46 (F)
BQ9. Using online group facility is a good way to communicate course information with project supervisor.	3.89	1.15	3.67 (M) 4.00 (F)
BQ10. I will usually use online group facility with a desktop PC computer or notebook computer.	3.95	1.18	3.00 (M) 4.38 (F)
BQ11. Online group facility can serve a useful purpose in an educational setting.	4.11	0.94	3.50 (M) 4.38 (F)
BQ12. Use of online group facility is a positive aspect of this project course.	4.00	1.00	3.33 (M) 4.31 (F)
BQ13 I think that online group facility is useful in the teaching and learning process.	3.95	1.03	3.33 (M) 4.23 (F)

\*\*\* The high Cronbach’s Alpha coefficient of 0.938 suggests that the scale scores for questions BQ8-BQ13 are reasonably reliable with high extent of internal consistency needed in the measurement.

According to Table 3, some project groups (like Groups A and E) showed a high level of interaction with the tutor using WhatsApp IM tool and Facebook group facility. It can be checked that Group A members have very strong commitment in using such social media communication. Group A members are very active in using both WhatsApp and Facebook group during the project period. Group A has initiated the highest number of WhatsApp with their project tutor as well as Facebook group exchanges among group members. As introduced by some researchers, the so-called “we-intention” is strongest for Group A out of the five groups involved in the present study. The two social media group facilities are accepted for team collaboration when it is adopted by all Group A members. For Group E, the students are very active using Facebook group for sharing their work among themselves. Group B students did not take an active role in initiating Facebook messages during the project period. They used mostly WhatsApp to communicate with the project tutor, and use electronic mail instead of Facebook for sharing of documents among group members.

It can be seen from Table 3 that all five groups of students completed their projects successfully with individual overall assessment marks well over 50. Group C has the highest average marks of 72.8, followed by Group D (70.6). An average number of WhatsApp messages were made between Group C and the project tutor throughout. The corresponding high standard deviation value of 2.98 indicates that group members have rated the performance differently among themselves. For both Groups A and D have zero standard deviation for their members’ marks since all members of Groups A and D obtained the same overall assessment marks. This indicates that the members of the respective group rate the other members equally in the peer assessment.

**Table 3 Statistics on using electronic communication and assessment results obtained for the five project groups of students**

Project Group	WhatsApp		Facebook		Overall assessment results (average of four students)	Standard deviation of marks for the four students in each group
	No. of incidents that tutor initiated messages to group	No. of incidents that group initiated messages to tutor	No. of incidents that tutor initiated messages or uploading documents	No. of incidents that group initiated messages or uploading documents among members		
A	25	21	12	121	64.2	0.00
B	24	5	13	0	63.9	2.11
C	31	17	19	54	72.8	2.98
D	42	11	26	21	70.6	0.00
E	32	12	27	81	58.8	2.21

In light of the findings of the questionnaire survey, discussions were held between the project tutor and some of the project teams. It was found that students of some groups have used WhatsApp to communicate among themselves outside the group mechanism. Students have considered the communication between their project group with the tutor as a formal one. The students therefore have communicated in a way to their tutor carefully in light of his teacher status of the latter. Besides, it was found that not all



group members are active in using IM communication. Members of project groups usually left the group representative(s) to take care of the WhatsApp communication with the project tutor.

## 5. Conclusion

According to the response obtained in the survey, the students are very positive towards the use of social media communication during the project process. In fact, with social media communication, the project tutor can better monitor the progress of their students enabling the successful completion of the dissertation project. Social media communication is of great value to the assessment-as-learning mode of assessment of group project process. However, the present study only focuses on the communication between the tutor and students as a group. In the present context of IM group communication, not all members of each group are active in using the group communication channel. For the Facebook group communication, most students only make use of the facility to share the reference materials and their contribution work with the other group members and tutor.

In this paper, the student engagement in using WhatsApp and Facebook group facility is measured on project group basis. The engagement is measured using the number of messages/postings initiated by the students. Other measures of engagement are needed so as to understand the students better in using the social media communication tools. Due to the limited number of students involved in this study, there is no control group of students (without involving both WhatsApp and Facebook group involvement) set up. Otherwise a comparative study can be carried out to check whether the completion of group projects is affected by such social media type of group communication.

The use of social media communication can strengthen the communication with and facilitate better support of students in addition to the regular face-to-face project meetings. Such communication can enhance the engagement of both students and project tutor in the group project process. A closer and good relationship can be established between the two parties involved. Based on the findings obtained, it can be concluded social media group communication between the project tutor and the students does have some positive impact. All five projects involved in the study are completed successfully. However, the possible direction of effect as well as relationship between the extent of communication (as measured by the number of messages exchanged) and the overall students' assessment results is unknown based on the present study. It is reasonable to assume that the overall assessment result of students depends on other factors as well. Potential factors might include the ability of individual students in a group, group members' commitment in completing the project, social identity in the group, etc. Further research can be pursued in this area.

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## APPENDIX

### Survey on Using Instant Messaging Tool

<b>USAGE OF INSTANT MESSAGING</b>	
AQ1. Do you possess a smartphone for your own use ? <input type="checkbox"/> YES (Continue with the other questions) <input type="checkbox"/> NO (Exit survey)	
AQ2. Have you used the following instant messaging (IM) tools(s) using your smartphone(s) in the past three months ? (Can tick more than one choice) <input type="checkbox"/> WhatsApp <input type="checkbox"/> WeChat <input type="checkbox"/> LINE <input type="checkbox"/> None (Exit survey)	
AQ3. How long have you been using IM tools ? <input type="checkbox"/> Below 1 year <input type="checkbox"/> 1 – 2 years <input type="checkbox"/> 2 – 3 years <input type="checkbox"/> More than 3 years	
AQ4. Which of the following IM tools do you used <b><u>MOST</u></b> often in your daily lives in the past three months ? (Choose <b><u>one choice only</u></b> ) <input type="checkbox"/> WhatsApp <input type="checkbox"/> WeChat <input type="checkbox"/> LINE <input type="checkbox"/> Others, please specify _____.	
AQ5. How many hours do you usually spend, on average, on using IM per day ? <input type="checkbox"/> Below 1 hour <input type="checkbox"/> 1 – 2 hours <input type="checkbox"/> 2 – 3 hours <input type="checkbox"/> Above 3 hours	
AQ6. How many persons, on average, do you contact using IM per day ? <input type="checkbox"/> Below 5 persons <input type="checkbox"/> 6 – 10 persons <input type="checkbox"/> 10- 15 persons <input type="checkbox"/> Above 15 persons	
AQ7. Who are the persons that you usually communicate using IM tools ? <input type="checkbox"/> Family members <input type="checkbox"/> Friends <input type="checkbox"/> Classmates <input type="checkbox"/> Others, please specify _____.	
AQ8. What are the reason(s) that can explain why you use IM more than email ? ( <b><u>Can tick more than one choice</u></b> )  <input type="checkbox"/> Quicker to use IM than email with my smartphone <input type="checkbox"/> Can communicate with receiver simultaneously <input type="checkbox"/> IM include the functionality of email. <input type="checkbox"/> Others, please specify _____	

<p>AQ9. What are the reason(s) that you prefer to receiving messages (those sent from instructors) via IM rather than email or Web-based teaching platform (e.g. Blackboard) ?  <b>(Can tick more than one choice)</b></p> <p><input type="checkbox"/> Quicker to receive IM messages than email or Blackboard announcements</p> <p><input type="checkbox"/> More convenient to receiving messages using smartphones</p> <p><input type="checkbox"/> IM tools provide alerts on receiving new messages</p> <p><input type="checkbox"/> Others, please specify _____</p>	
<p><b><u>USE OF INSTANT MESSAGING IN TEACHING AND LEARNING</u></b></p>	
<p><b>Please answer the following questions (AQ10 – AQ21) using the following index:</b></p> <p><b>1 = Strongly disagree</b>  <b>2 = Disagree</b>  <b>3 = Neutral</b>  <b>4 = Agree</b>  <b>5 = Strongly agree</b>  <b>9 = Not apply</b></p>	<p><b><u>Please CIRCLE one choice only</u></b></p>
<p>AQ10. Receiving instant messages on my smart phone is a good way to communicate course information with instructor.</p>	<p>1 2 3 4 5 9</p>
<p>AQ11. I received course information that was useful to me through instant messages on my phone.</p>	<p>1 2 3 4 5 9</p>
<p>AQ12. I will follow up with IM messages using a desktop/notebook computer if needed.</p>	<p>1 2 3 4 5 9</p>
<p>AQ13. Receiving IM messages from instructor is a good way to obtain course information.</p>	<p>1 2 3 4 5 9</p>
<p>AQ14. I constantly used my smart phone, so receiving IM Messages from the instructor is normal for me.</p>	<p>1 2 3 4 5 9</p>
<p>AQ15. I frequently replied instant messages back to the instructor after receiving instant message(s) from him/her.</p>	<p>1 2 3 4 5 9</p>
<p>AQ16. I received just about the right number of instant messages from my instructor per week.</p>	<p>1 2 3 4 5 9</p>
<p>AQ17. I initiated instant messages to my instructor at least once during 1-2 weeks.</p>	<p>1 2 3 4 5 9</p>
<p>AQ18. Receiving instant messages from instructor helped me stay up-to-date with this course.</p>	<p>1 2 3 4 5 9</p>
<p>AQ19. Instant messages can serve a useful purpose in an educational setting</p>	<p>1 2 3 4 5 9</p>
<p>AQ20. Receiving text messages is a positive aspect of this course.</p>	<p>1 2 3 4 5 9</p>
<p>AQ21. I think that IM is useful in the teaching and learning process</p>	<p>1 2 3 4 5 9</p>
<p>AQ22. Any COMMENTS on using IM tools as a teaching and learning tool ? Please specify here.</p>	
<p><b><u>PERSONAL INFORMATION</u></b></p>	
<p>AQ23. Your area of study</p> <p><input type="checkbox"/> Accounting</p> <p><input type="checkbox"/> Marketing</p>	
<p>AQ24. Sex</p> <p><input type="checkbox"/> Male</p> <p><input type="checkbox"/> Female</p>	

AQ25. Age <input type="checkbox"/> Below 18 <input type="checkbox"/> 18 – 25 <input type="checkbox"/> 26 – 35 <input type="checkbox"/> 36 – 45 <input type="checkbox"/> 46 – 55 <input type="checkbox"/> 56 – 65 <input type="checkbox"/> Above 65	
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**Survey on Using Facebook Online Group tool**

<b><u>USAGE OF Facebook group facility</u></b>	
BQ1. Do you possess a smartphone for your own use ? <input type="checkbox"/> YES (Continue with the other questions) <input type="checkbox"/> NO (Exit survey)	
BQ2. How long have you been using facebook group facility <b><u>BEFORE</u></b> this project course? <input type="checkbox"/> Below 1 year <input type="checkbox"/> 1 – 2 years <input type="checkbox"/> 2 – 3 years <input type="checkbox"/> More than 3 years	
BQ3. Other than facebook group facility, which <u>other online group facility</u> do you used <b><u>MOST</u></b> often in your daily lives in the past three months ?  Please list all _____.	
BQ4. How many hours do you usually spend, on average, on using <b><u>ONLINE GROUP FACILITY</u></b> per day ? <input type="checkbox"/> Below 1 hour <input type="checkbox"/> 1 – 2 hours <input type="checkbox"/> 2 – 3 hours <input type="checkbox"/> Above 3 hours	
BQ5. How many <b><u>persons (including YOU)</u></b> , on average, are usually involved in each online group ? <input type="checkbox"/> Below 5 persons <input type="checkbox"/> 6 – 10 persons <input type="checkbox"/> 10- 15 persons <input type="checkbox"/> Above 15 persons	
BQ6. Who are the <b><u>persons</u></b> that you usually communicate using online group facility ? <input type="checkbox"/> Family members <input type="checkbox"/> Friends <input type="checkbox"/> Classmates <input type="checkbox"/> Others, please specify _____.	
BQ7. What are the <b><u>reason(s)</u></b> that can explain why you use online group facility ? ( <b><u>Can tick more than one choice</u></b> )  <input type="checkbox"/> Can communicate with more than one group member conveniently <input type="checkbox"/> Can share files/documents more conveniently than instant messaging tool such as WhatsApp <input type="checkbox"/> Can share files/documents more conveniently than email <input type="checkbox"/> Others, please specify _____	

<b><u>USE OF ONLINE GROUP FACILITY IN TEACHING AND LEARNING</u></b>	
<p><b>Please answer the following questions (BQ8 – BQ14) using the following index:</b></p> <p><b>1 = Strongly disagree</b>  <b>2 = Disagree</b>  <b>3 = Neutral</b>  <b>4 = Agree</b>  <b>5 = Strongly agree</b>  <b>9 = Not apply</b></p>	<p><b><u>Please CIRCLE one choice only</u></b></p>
BQ8. Using online group facility is a good way to communicate course information with GROUP MEMBERS	1 2 3 4 5 9
BQ9. Using online group facility is a good way to communicate course information with PROJECT SUPERVISOR.	1 2 3 4 5 9
BQ10. I will usually use ONLINE GROUP FACILITY with a desktop PC computer or notebook computer.	1 2 3 4 5 9
BQ11. ONLINE GROUP FACILITY can serve a useful purpose in an educational setting	1 2 3 4 5 9
BQ12. Use of ONLINE GROUP FACILITY is a positive aspect of this project course.	1 2 3 4 5 9
BQ13 I think that ONLINE GROUP FACILITY is useful in the teaching and learning process	1 2 3 4 5 9
BQ14. Any COMMENTS on using ONLINE GROUP FACILITY as a <u>teaching and learning</u> tool ? Please specify here.	

**END**

# The design of economical blended mobile learning with SMS

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*Abstract* As mobile devices become daily necessities, almost learners have their own mobile devices, especially such as cellular phone or smart phone. And mobile ecosystem increases competitiveness and has influence over daily life and especially e-learning. However, mobile devices are not cheap and mobile communication fee is very expensive. Hence, mobile learning could create digital divides between the rich and the poor. Thus mobile learning should be carefully and continuously considered. Mobile communication services, such as SMS (short message service) and MMS(Multimedia Messaging Service) are very efficient and useful e-learning tools. Definitely MMS is more efficient than SMS, but MMS receive and send fee is still expensive and SMS receive is free.

In this paper, we propose blended e-learning scenarios that use SMS as learning instruction and feedbacks to students. Students receive SMS from a lecturer or a tutor without cost. When students receive free SMS from a lecturer or a tutor, the students will react to instruction of a lecturer or a tutor without cost on their desk-top computer. There are two kinds of SMS. One is SMS that is for homework, references and class events. Another is SMS that is for pop-up quiz and short answered examinations. Because of free SMS, our proposed blended mobile learning scenarios could support more interactive e-learning environments between lecturers and students. With SMS, we design and propose blended examination scenario, blended assignment scenario, blended tutorial scenario and blended learning activity encourage scenario. Proposed blended e-learning scenarios will fit for poor students so that students learning conation and learning motivation would be improved.

Keywords: blended mobile learning, SMS, Blended e-learning, cellular phone

## 1. Introduction

As wireless and mobile communication technologies rapidly developed, various mobile communication devices (smart phones and touchpad computers, etc.) are easily and cheaply produced and sold. The demands for mobile contents services have increased tremendously. That means that there will be big demands for mobile learning contents and various mobile learning scenarios in e-learning environments. There is no doubt that mobile learning environments will be useful and efficient for students' learning stimulation and learning accessibility. Thus, mobile learning has become the focus of numerous learners and teachers, while its effectiveness and efficiency has been positively viewed by the instructors in Kotecha (2012) and Rekkedal (2009). However, in order to construct mobile learning environments, students may have to pay for high mobile devices and mobile communication fees, and the university and the government may have to invest heavily in mobile learning system. In addition to that, there are still many other problems and barriers to implement mobile learning. It may need significant changes in legacy e-learning environment, university e-learning policy and



learning contents modifications. Lastly, Dye (2009) and Peters (2009) insists that mobile learning could create inequities among the students.

In this paper, we propose an economical blended mobile learning strategy for Wawasan Open University(WOU) by using Short Message Service (SMS) service. SMS can be provided to the students for free so that it does not put any burden on the students. Using SMS, students can receive real-time notices from lecturers and tutors. When students receive SMS notices from lecturers and tutors, students could react in real time, for activities such as assignment submission, examination preparation, and learning progress according to the SMS notices. Lastly, we suggested mobile stimulation strategy with SMS. Mobile stimulation strategy with SMS is a basic personalized learning care method. Relevant SMS notices will be sent to the students according to their learning progress. The students will feel the personal learning care from their tutors and lecturers.

The remainder of this paper is organized as follows. In chapter 2, we analyze previous related works and research. The proposed economical blended mobile learning services are described in chapter 3. We introduce the service flows and messages flow for economical blended mobile learning services for Wawasan Open University. Finally, we conclude in section 4.

## **2. Related Works**

The usual mobile learning services focused on efficiency of e-learning and accessibility so that previous mobile learning environment was based on MMS and 3G/4G mobile network. For those requirements, these mobile learning services can supports real-time e-learning contents delivery. However, those kinds of focus and environment burdened students with high cost and expensive smartphones. Hence, the students will find it hard to take up the mobile learning services. Thus Rekkedal (2009) suggested SMS as a main communications between learning contents and students. The asynchronous communication will reduce the students' communication cost, and students will be able to response to the e-learning portal or submit assignments in real time. In Peters (2009) and kukulska-hulme (2009), mobile learning services with SMS were used as communication tools for short questions and answers, short text resources, and alert. Lastly Chung (2010) and Chung (2009) proposed and implemented smart phone based digital textbook for a distance learning university. However, it burdened students with high costs and expenses. Thus we propose the economical mobile learning service prototype that uses SMS as communication between learners and students without extra charge, and encourages real-time-like learning reactions of students.

## **3. Design of Economical Blended mobile Learning Services**

WOU economical blended mobile learning support service aims at economical mobile supports for students with SMS, and real-time-like interactions between tutors and student. WOU economical blended mobile learning support service is basically free for students, since SMS can be delivered freely to students in almost real time. The goals of WOU economical blended mobile learning support service are:

- 1) Real-time learning feedback to students with free SMS combined with legacy WOU learning scenarios that neither need to revised nor modified.
- 2) Blended mobile learning support models for various WOU learning activities and feedbacks among lecturers, tutors and students.
- 3) Encourage students to participate in examinations, assignments, and tutorials.

### 3.1. Advanced Mobile Examination Support Service

As the first step, SMS notices for examination are sent to students. SMS notices for examination include examination date, examination coverage and examination methods. SMS notices for examination are relayed by BTS (Base Transceiver Station) to students' cellular phone. Students go to WOU Branch and take examination there. After the examination, hard copies are marked by lecturers and tutors and gathered at the WOU Registry office. Scores of examination hard copies are input and recorded at 'WOU student portal Server'. Examination scores are delivered to students by external SMS server.

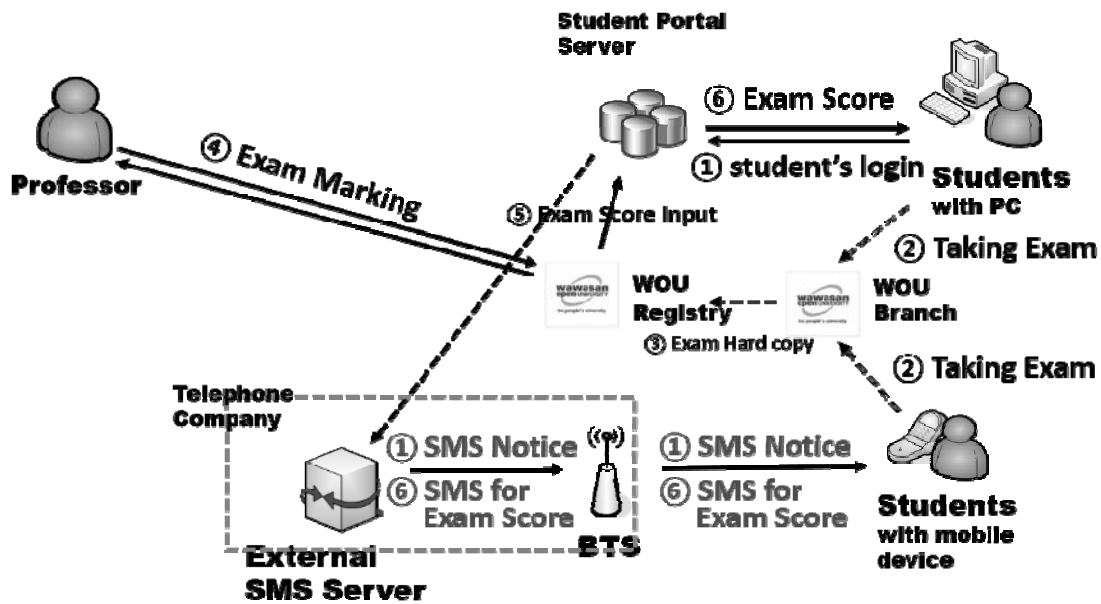


Figure 1. Advanced Mobile Examination Support Service Flow

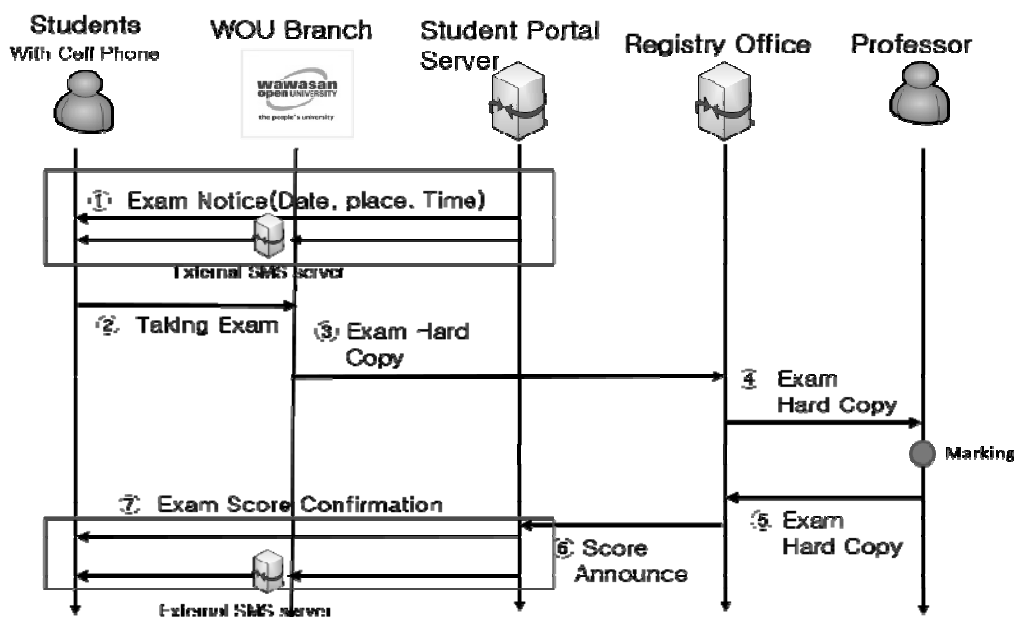


Figure 2. Advanced Mobile Examination Support Service Message Flow

In figure 2, 1) students receive examination notice (examination date/time/place, examination coverage and examination methods) that are predefined by tutors and lecturers at the beginning of the school term. The examination notice is served by external SMS server. 2) After receiving examination notice, students take their exam at the WOU branch. 3) Examination scripts are gathered at WOU registry office. 4) Examination scripts are delivered to lecturers or tutors who mark the examination scripts. 5) After marking examination scripts, lecturers or tutors input score and grade of examination scripts. 6) WOU Registry Office delivers and announces score and grade of examination scripts to WOU Student Portal server. 7) Score and grade of examination scripts and correct answers are delivered to students.

### 3.2. Advanced Mobile Assignment Support Service

At first stage, lecturers and tutors upload student's assignment to WOU LMS. When students' assignment is uploaded, basically students log in students portal server and confirm their assignment. For students who have not confirmed with personal computers, SMS notices for assignment will be sent to students. SMS notice for assignment includes assignment due date, assignment coverage and references. SMS notices for assignment are relayed by BTS (Base Transceiver Station) to students' cellular phone.

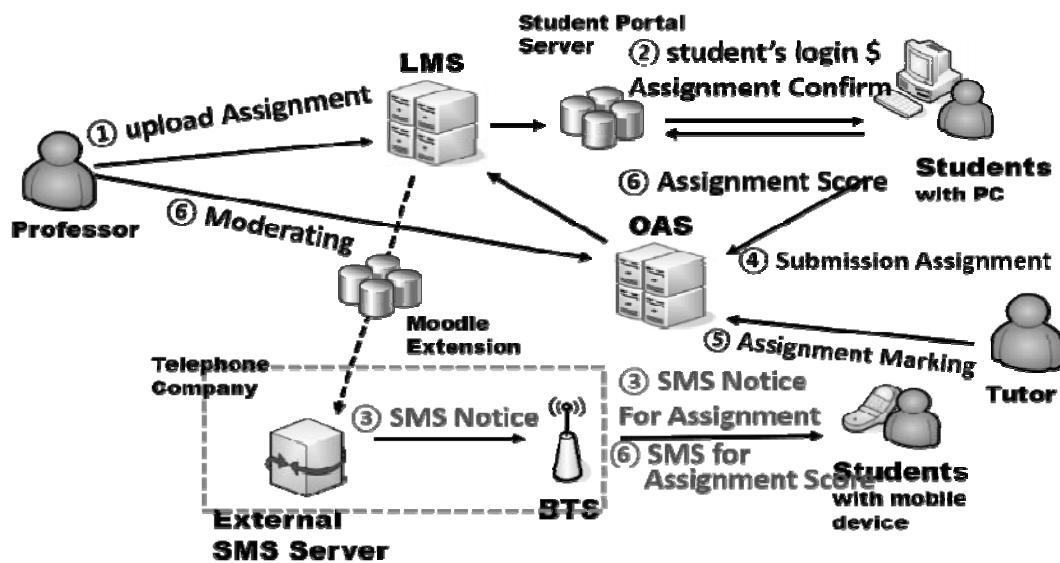


Figure 3. Advanced Mobile Assignment Support Service Flow

After students receive SMS notices for assignment, they will be able submit their assignment until the due date. When all student assignments submission are completed, WOU branch tutors mark the assignment and input students' assignment score into the OAS. After all assignments are marked and graded, OAS supplies WOU LMS with the assignment scores and grades. Then WOU LMS request SMS notice for assignment scores and grades to BTS (Base Transceiver Station). Students can receive their assignment scores and grades via their cellular phone.

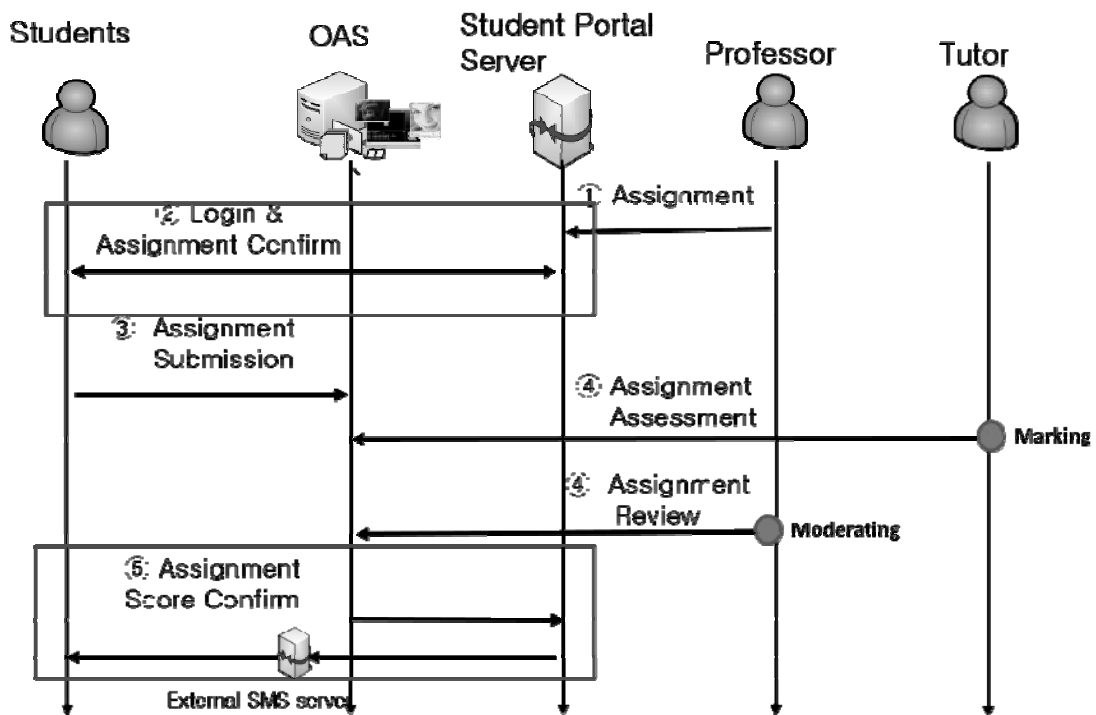


Figure 4. Advanced Mobile Assignment Support Service Message Flow

In figure 4, 1) a lecturer uploads an assignment on WOU student portal server. 2) Students log on WOU students portal server and confirm their assignments. 3) After students' confirmation, the students submit their assignments to the OAS. 4) OAS requests SMS notice for tutors who mark and grade the students' assignments. A lecturer reviews and moderate students' assignments. 5) Students receive SMS notice for assignment score and grade from external SMS server. SMS notice for assignment scores and grades are request by WOU student portal server.

### 3.3. Advanced Learning Tutorial Service

A lecturer uploads course materials to WOU LMS and a tutor also uploads course supplementary and reference materials. When a student logs into the WOU students portal server, he/she can read and download the course materials, supplementary and reference materials. If there are students who do not log into the WOU students portal server and do not read download the course materials, supplementary and reference materials at a given time, SMS notices for source materials upload will be sent to them.

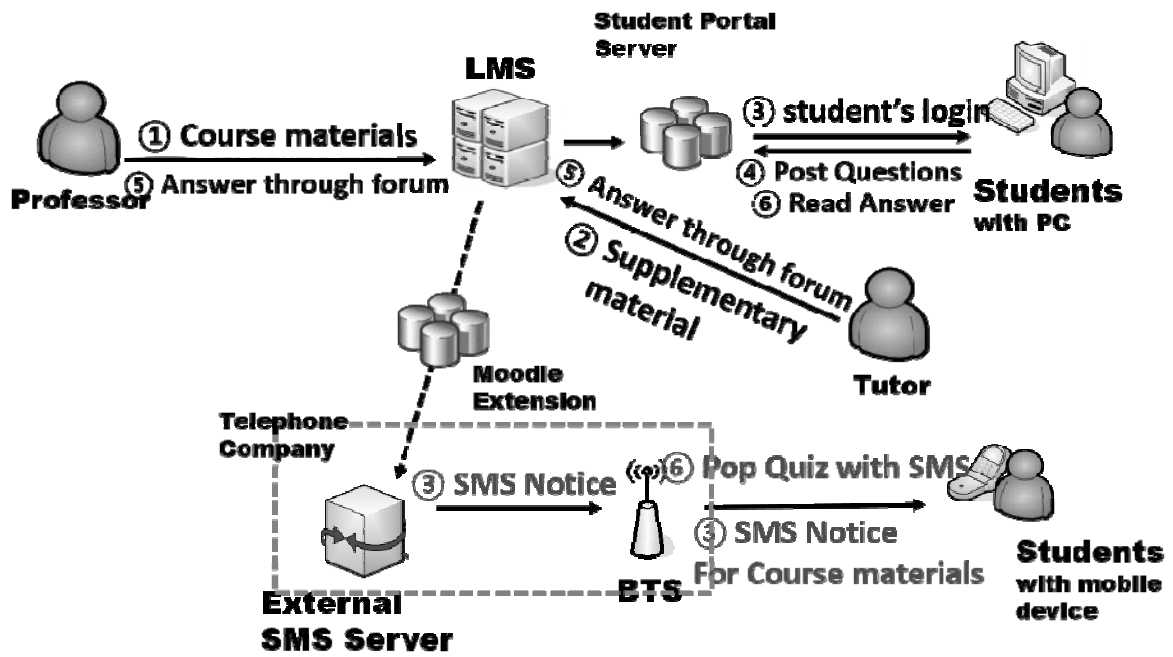


Figure 5. Advanced Learning Tutorial Service Flow

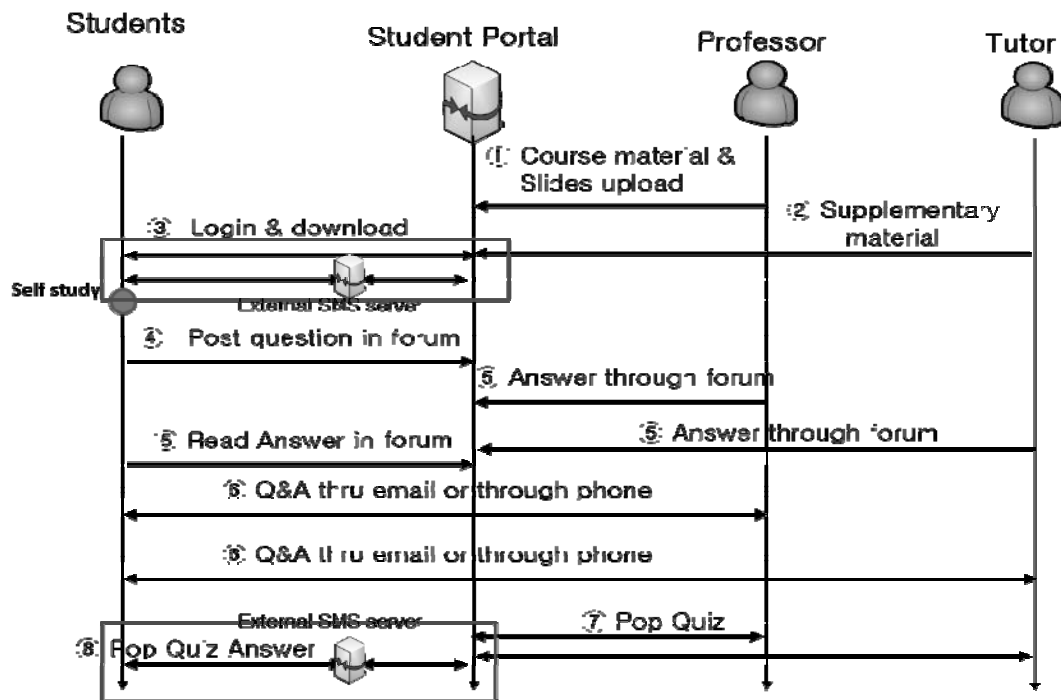


Figure 6. Advanced Learning Tutorial Service Message Flow

A student can posts questions about their subjects and the WOU student portal server will request question notice for a lecturer and a tutor. When the lecturer or the tutor receives question notices, the lecturer or the tutor answer the question through WOU LMS. After the lecturer or the tutor's answer to the students through WOU LMS forum menu, students can read the answers. Lastly, students can receive SMS notices for pop-quizz that is predefined by tutors or lecturers.

In figure 6, 1) Lecturers upload course materials and references on WOU students portal server. 2) Tutors upload course references and supplementary materials on WOU student portal server. 3) SMS notices for source materials are sent to students and students log on WOU students portal server and download their upload course materials and references. 4) Occasionally students post their questions on Class Forum WOU students portal server. 5) Lecturers and tutors answer the student questions on WOU students portal server. 6) The students' questions, lecturers' and tutors' answers are exchanged through e-mail and cellular phone. 7) Lecturers and tutors upload pop quizzes onto WOU students portal server. 8) The pop quizzes are sent to students through SMS server. A few days later, pop quizzes answers are sent to students through e-mail and cellular phone.

### 3.4. Advanced Learning Activity Encouragement Service

Advanced Learning Activity Encouragement Service is newly proposed in this research. Advanced Learning Activity Encouragement Service uses SMS notice for student stimulation. Students' learning progress could be personally managed and students could be encouraged by Advanced Learning Activity Encouragement Service. SMS notice for Advanced Learning Activity Encouragement can be sent periodically or occasionally according to scores and grades of exam, assignment and homework submission frequency, and students' personal learning progress.

At the beginning, a lecturer inputs WOU learning activity schedule for a subject into the WOU LMS. According to the WOU learning activity schedule and students' personal learning progress, appropriate SMS notices will be delivered to the student. If a student does not follow his/her own learning progress, WOU LMS detects the learning state of the student and automatically, SMS notice for Advanced Learning Activity Encouragement will be sent to the student.

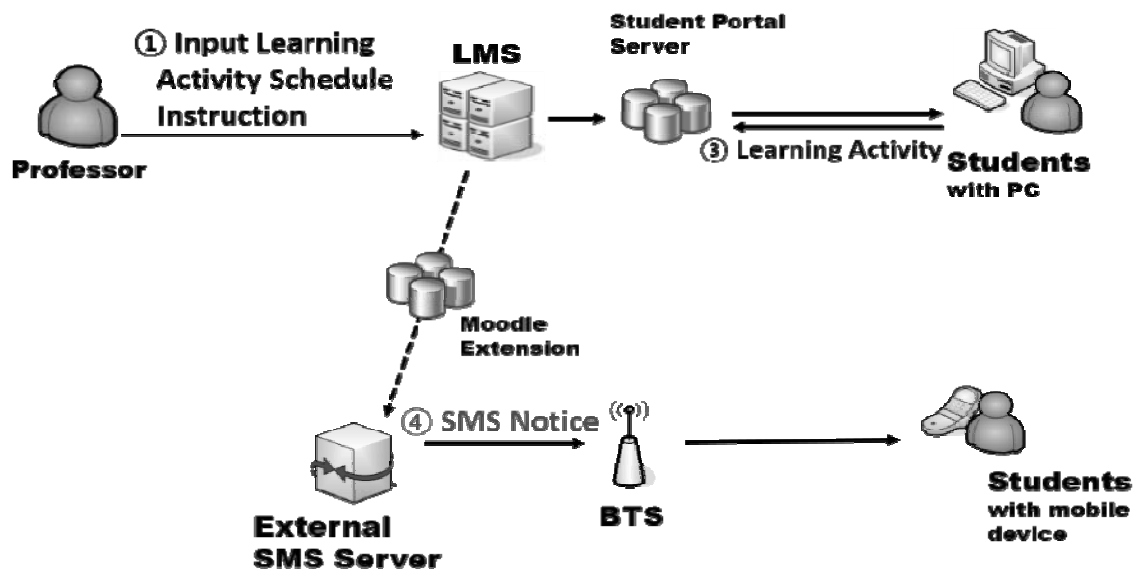


Figure 7. Advanced Learning Activity Encouragement Service Flow

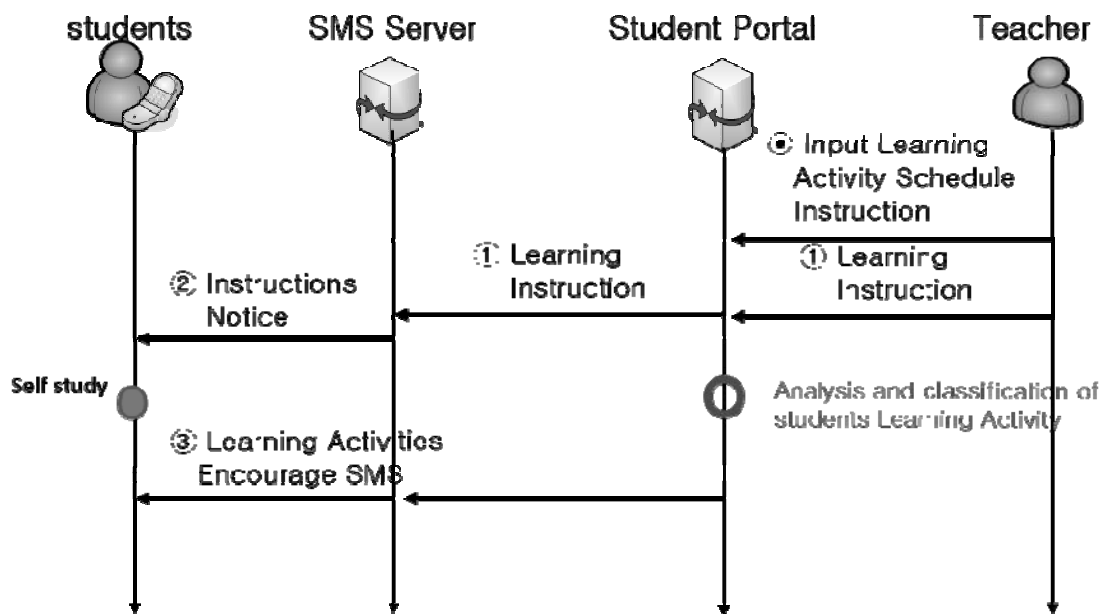


Figure 8. Advanced Learning Activity Encouragement Service Message Flow

In figure 8, 1) a lecturer inputs WOU learning activity schedule for a subject on WOU student portal server. WOU student portal server requests for SMS notice from the external SMS server. 2) Periodically and occasionally SMS notice for students Learning Activity Encouragement will be sent to the students. 3) If a student receives SMS notice for students Learning Activity Encouragement, the student can log into the WOU student portal website for his/her learning activity. WOU student portal server analyses and classifies students' learning activity. Based on the results, SMS notice of the Learning Activity Encouragement will be sent to the students.

#### 4. Conclusion

We propose an economical WOU mobile learning service that combines WOU's offline learning scenarios with SMS between students and lecturers. The proposed learning services do not burden students with high communication costs and expensive smart phone. Thus, students are able to be encouraged in learning progress and tutoring engagement and timely reminded of their assignments. For the proposed WOU mobile learning service, WOU learning scenarios are analyzed and various staffs are interviewed. This paper presents a project-based methodology that employs systematic procedures to scope, prototype, review and designs the framework of SMS blended mobile-learning in WOU environment. The design of the project methodology identifies use of SMS support for reminder and responses usage of applications in distributed learning environment. The study conducted identifies the development framework of SMS-based technology prototype to support careful coaching and encourage stimulation in WOU environment Thus, this paper suggested a mobile service plan that does not incurred high communication cost.

We proposed four blended mobile learning scenarios and service flows that consist of students, lecturer, external SMS server and 2G/3G cellular phone for SMS. With the proposed system, the students would receive and read SMS notices for assignments, examinations, encourages, and tutorials. They could join the WOU learning tutorials, submit assignments and take examinations. The SMS will enhance the interaction

between the students and their lecturers. . The WOU economical mobile learning system will enhance the interactions among the students, lecturers, and tutors.

## **5. Acknowledgement**

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# **An empirical study of flipped classrooms in an open university: A case study on translation theory and practice**

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**Abstract:** A flipped classroom is a new form of blended learning in which students learn new content online by watching video lectures, usually at home, and what used to be homework (assigned problems) is now done in class with teachers offering more personalized guidance and interaction with students, instead of lecturing. But from the perspective of ecology, education can be healthily developed in a harmonious and dynamic-balanced ecological system. Therefore, the project, exemplified with translation teaching, constructs a flipped teaching model based on ecological perspective that distance learners of Open University will adapt to after revisiting flipped classroom. Through the teaching experiment in the course of Translation Theory and Practice, the author highlights a good ecological relationship should be established in translation subject, translation object, objectives of translation course, translation sources, and requirements from translation market, based on which the basic teaching process of flipped classroom and lists the specific operation matters are concluded. After one-year experiment with the help of questionnaire, interview, it is found that the flipped teaching model with integration of modern information technology (with functions of interaction, virtual simulation and social networking) into translation teaching can help learners learn language through translation, and then acquire needed knowledge by language in order to express their professional thoughts, so that the harmony and unity of translation teaching eco-environment is realized.

**Keywords:** Flipped classroom; Ecological perspective; Translation teaching model; Empirical study; Open University.

## 1. Introduction

Flipped classroom, produced by Jonathan Bergmann and Aaron Sams who struggled to find the time to reteach lectures for absent students in 2007, describes a reversal of traditional teaching where students gain first exposure to new materials outside class, usually via video lectures prepared by teachers, and then class time is used to do the harder work of assimilating that knowledge through problem-solving, discussion or debates (Bergmann & Sams, 2012). A search of the literature revealed the studies on flipped classroom focused on descriptions of flipped classroom (Jinlei Zhang, 2012; Lage, 2000), employing flipped classroom in the teaching practice (Day & Foley, 2006; Bland, 2006; Xiaodong Wang, 2012), and instructional design based on flipped classroom in ICT environment (Xiaoliu Zhong, 2013). Based on the above studies, the author conducted an empirical study to examine student performance throughout two

semesters after employing flipped classroom from ecological perspective in translation course.

## 2. Connotation of flipped classroom

The technological movement which enables the amplification of information at a low-cost has changed the face of education (Bishop & Verleger, 2013). Studies on technology show that interactive video lessons outperform in-person lectures at conveying basic information, and online assignment is as effective as paper-and-pencil assignment, so is the developed intelligent tutoring systems when compared to human tutors, all of which contribute to the new concept: flipped classroom. However, as a new exciting buzzword, there is a lack of consensus on the definition of flipped classroom. Some definitions just re-order the classroom and at-home activities (Lage, 2000). In this study, flipped classroom is defined as two parts: (1) group learning activities that cannot be computerized or automated with interaction inside the class; (2) pre-recorded instructional videos outside the classroom with the help of a free access to information provided by Open Course Ware, the Khan Academy, Udacity, Coursera and etc.

In order to have a clear idea of flipped classroom, a comparison between traditional teaching and flipped classroom model is represented in Table 1.

Table 1. Comparison between flipped classroom and traditional teaching

		Traditional teaching	Flipped classroom
Teaching process	Imparting knowledge	Teachers: delivering lessons Students: knowing what to learn inside the class	Teachers: imparting knowledge outside the class Students: viewing and/or listening to teacher-created videos and interactive lectures
	students' internalization in knowledge	Applying knowledge to solve problems and do practice work outside the class	Inside the class, applying knowledge through solving problems, advancing concepts, and engaging in collaborative learning
Teachers' and students' roles	Teachers' roles	Ones who impart knowledge	Ones who are from "sage on the stage" to "guide and tutor on the side"
	Students' roles	Ones who are crammed to acquire knowledge by teachers	Ones who are from "passive learners" to "active learners"

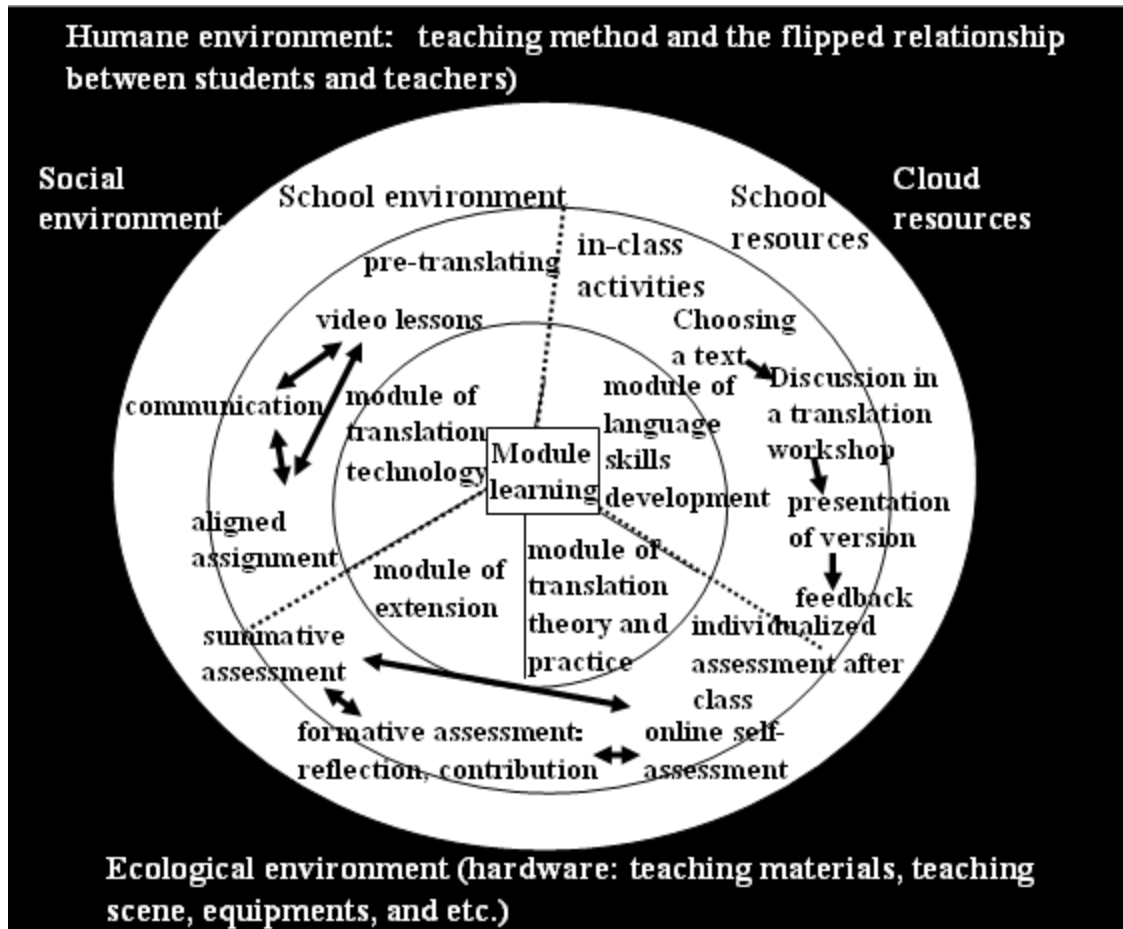
Teaching resources		Few online resources with little interaction	10-minute teacher- or the third party-created videos about the content--- theoretical/lecture-based component of the lesson more easily and controlled by learners, for example, allowing students to progress at their own pace, and review the parts that are of great interest, which are misunderstood and need further reinforcement
Teaching environment (Learning Management System with a combination of offline classroom and online platform)	teacher	Difficult to dynamically know the students	helping teachers effectively organize the class, record the students' achievements and know the difficulties students encounter, so as to adjust their own teaching plan promptly.
	student	No places to share ideas, discuss the problems and work out the tasks cooperatively	Establishing dialogue and exchanging ideas between students, teachers and subject experts in this learning community, so as to finish the task cooperatively

### 3. Translation teaching based on flipped classroom model from ecological perspective

Translation course is interested a lot in training and graduating efficient and competent translators. However, the enclosed and teacher-oriented traditional teaching method pays more attention to language points, with lack of effective communication between students and teachers, students and outside world. There is a wide consensus among the teachers of translation that translation class falls short of its expectations.

With the technological movements, with free and opened access to information, the flipped classroom model was employed in translation teaching from ecological perspective in the study. The following is the basic process of ecological flipped classroom model of translation teaching (Graphic I):

Graphic 1. Ecological Flipped Classroom Model of Translation Teaching



3.1 *Constructing the harmonious and dynamic-balanced ecological learning environment*, including ecological environment and humane environment. Except for teaching materials provided by schools (small environment), there are cloud materials provided by the information society (big environment), which can solve the problems of short time and limited teaching materials in the class time. In this case, the ecological interaction between students, teachers, translation materials and web is of great significance. Besides, a balance is sought to reach between teaching and learning, that is, the pace of teaching should be adjusted based on the students' characteristics, curriculum and school equipments.

3.2 *Setting aims and contents*. With the adult students' lack of proficiency in English, translation course is and should be academic and geared to upgrading students' proficiency in the source and target language rather than professional: (1) module of language skills development for eliminating the effect of negative transfer of mother tongue; (2) module of translation theory and practice for helping students understand translation process and broaden their horizon in translation field; (3) module of extension for developing students' ability of thinking; (4) module of translation technology, including web-sharing technology (corpus, terminology database), search

engine technology, social networking tools (QQ, micro-message) and communication platform technology (BBS), for students' actively acquiring translation knowledge with various information technologies (Daling Ren, 2013). With people's entry into ubiquitous computing area, not only should teacher know how to integrate technology into teaching, but student should improve information technology accomplishment.

*3.3 Designing a teaching method based on flipped classroom.* With knowledge imparted outside class in teacher-created videos, class becomes the place for students to apply the knowledge by working through challenging problems with teacher's offering more personalized guidance and interaction with students. A proposed methodology based on flipped classroom can be described along the following lines:

Selecting the translation text. Students are encouraged to collect the translation texts met in daily life. The degree of text difficulty should meet the students' proficiency in English. Depending on the length of text and the degree of difficulty, the teacher divides the text into as many segments as groups of students. Each group is assigned a fair portion of the text. The segment distribution order can rotate so that a different group begins a translation unit every time.

Dividing students into several "translation workshops". One workshop is acted as project managers, one workshop as proofreaders, and the other workshops as translators. In pre-translating process, the teacher crafts a five-to-fifteen-minute video lesson or uses online materials from cloud materials which may explain the linguistic style and text type, introduce parallel corpus of the assignment and computer-assisted translation tools, and posts them online. The students, with information technology, can search and share materials related to the assignment. The teacher, with social networking technology, can follow up what each workshop has done and help them solve the problems.

In class time, one student in each workshop is elected to show how the group finishes the assignment. The project manager group tells others how to distribute the segments of the original text to other workshops and how to coordinates each workshop. The translator group recommends how to use computer-assisted translation tools and translation strategies in translating process before they read out the version. The proofreading group firstly presents the translation criteria they hold, explains why they agree or disagree with the versions the translating groups propose, and then recommends some translation technologies to proofread the version. During the procedure, students and teacher should feel free to stop the workshop's presentation, when the situation warrants questions, suggestions and contributions. The students can defend their presentation against criticism. Based on translation criteria and the homogeneity of terms and the coherence of the whole translated text, all the workshops analyze the translation strategies used and discuss the reasons taken into account in the choice of the version proposed. As Newmark(1995b) and Kussmaul(1995) state, "*The ability to discuss translation is central to a translator's competence*". Finally, each

workshop delivers the final version which is revised to the customer (teacher).

Evaluation: In flipped classroom model, evaluation is an indispensable part, which can evaluate whether the pre-translating process is well-prepared, and whether the students can apply knowledge into practice. To do the process of translation efficiently, students are encouraged to make comments each other, emphasize creative solutions, and analyze weaknesses in the process of translation. The formative evaluation of each student, including discussions, contributions, the way of consulting all possible written or “live” sources, analysis of the translation version, should be made in the students’ portfolios. In the process of discussion on the assignment, the students’ internalization in knowledge is finished.

#### 4. An experimental study on translation teaching based on flipped classroom model from ecological perspective

##### 4.1 Study participants

The participants were 60 sophomore students of Zhejiang Radio & TV University, majoring in English, from which 30 students were selected as experimental class, and the rest as control class. Before the experiment, Test for English Major 4 was used to evaluate two classes’ English proficiency. Independent sample t-test results showed that there were no significant differences between the two classes ( $t=0.044$ ,  $p=0.482>0.05$ ), that is, the students’ English proficiency of the two classes were the same.

##### 4.2 Study tools

Study tools included pre-and post-Tests for English Major 4, pre-and post- tests of translation, interviews, questionnaires, and SPSS 11.0. The post- Test for English Major 4 was to measure whether the students’ command of English language related to translation was improved in flipped classroom model. The student’s translation assignment was scored by three teachers, and its mean was his /her final result. According to PACTE, a translation competence scale had been designed on a 5-point Likert-type scale before SPSS was used to analyze the data from the scores of translation sub-competences of the experimental class and the control class. Besides, a questionnaire and interviews were conducted among the experimental class at the end of the experiment, with the questions including the students’ attitudes towards flipped classroom model, teaching contents, the teacher-created video lessons, the translation workshops.

### 4.3 Study Process

The control class adopted the traditional pattern: teacher firstly decided the teaching contents, and then assigned the translation exercise to the students, and finally offered the translated texts, while the experimental class adopted the flipped classroom model from ecological perspective. The study took the topic of translation criteria for example: (1) setting teaching contents: to know different translation criteria and their representatives; (2) dividing the students into several workshops; (3) offering the crafted, interactive video lessons (a discussion on translation criteria with one as a student, the other as the teacher) as students' homework: four types of translation criteria and their representatives (source-language-oriented or target-language-oriented translation principle; author-and-reader-oriented translation principle; aesthetic-oriented translation principle; the sociosemiotic-oriented translation), and encouraging students to come to class with a question instead of just watching the video and being done with it ; (4) in class time, MindManager was recommended to students to present translation criteria for reviewing knowledge in video lessons. Some translation exercises were selected for each workshop to discuss which translation criteria the different versions hold; (5) based on the discussion and contribution of each student in pre-translating stage and in class time, their performances were reserved in their own portfolios; (6) Besides, a network translation course platform (<http://cw1.zjtvu.edu.cn/k0513002/>) is offered, where the students can find real-time communication tools, online testing system, mobile learning and etc. for self-tutorial and reference before the class and after the class.

After one-year teaching experiment, both the experimental class and control class took part in Test for English Major 4 and translation test.

### 4.4 Results of the Study

All the data were examined through independent sample t-tests. The results showed that the students' scores on translation competence (including bilingualism competence, extralinguistic competence, instrumental-professional competence, translation technology competence, strategic competence) in the experimental class were higher than those in the control class ( $p=0.000$ ,  $0.000$ ,  $0.000$ ,  $0.000$ ,  $0.000<0.05$ ) (see Table 2). Besides, the students' average score on translation test in experimental class was higher than that in control class ( $t=-1.765$ ,  $p=0.041<0.05$ ) (see Table 3). Therefore, there were significant differences between the experimental class and the control class, which proved that the students' translation competence had been improved based on the flipped classroom model.

Table 2. Translation sub-competence scale of the experimental class and the control class after the teaching experiment

	Experimental Class (30)		Control Class (30)		t	p
	M (Mean)	SD(Standard Deviation)	M (Mean)	SD(Standard Deviation)		
Bilingualism competence	4.07	0.87	2.77	0.86	-5.83	0.000
Extralinguistic competence	3.57	1.14	2.57	0.82	-3.915	0.000
Instrumental-professional competence	4.03	0.89	3.00	0.87	-4.545	0.000
Translation technology competence	4.23	0.68	2.17	0.70	-11.617	0.000
Strategic competence	4.10	0.84	2.47	0.86	-7.419	0.000

Table 3. Comparison of scores of pre- and post- translation tests of the experimental class and the control class

	Experimental Class (30)		Control Class (30)		t	p
	M(Mean)	SD(Standard Deviation)	M (Mean)	SD(Standard Deviation)		
Scores of translation test (pre-test)	64.30	11.38	64.53	11.05	0.081	0.468
Scores of translation test (post-test)	71.43	11.36	66.43	10.56	-1.765	0.041

Besides, the average score of Test for English Major 4 in the experimental class was higher than that in the control class (74.2>66.9). After examined through independent sample t-tests, there were significant differences ( $t=-2.68$ ,  $p=0.005<0.05$ ). Therefore, the flipped classroom model from ecological perspective can also improve the students' English comprehensive ability. To analyze whether the students' English proficiency related to translation was developed in flipped classroom, the study also analyzed the data collected from the scores on listening, reading, writing and vocabulary and grammar. With independent sample t-tests, it was found that there were no significant differences between listening and vocabulary and grammar in the experimental class and the control class ( $P=0.4$ ;  $0.280>0.05$ ,  $t=0.248$ ;  $-0.586$ ), but in reading and writing,



there were significant differences ( $P=0.008$ ;  $0.0045 < 0.05$ ,  $t=-2.46$ ;  $-2.70$ ). Therefore, the flipped teaching model with information technology integrated into translation teaching can help learners learn language through translation, and then acquire needed knowledge by language in order to express their professional thoughts.

The questionnaires and interviews revealed that most of the students were satisfied with the flipped classroom model. 85% of the students held that with video lessons accessed at home, they had more freedom to customize when and where to learn. They really liked being able to control the pace of delivery of the content in the video. Besides, the adult students had time to watch a fifteen-minute video and didn't have to struggle with the book assignment. 78% of the students, in translation workshop, had more opportunities to engage in more higher-order thinking projects related to their profession. 70% of the students found it challenged and supported to get more attention from the teacher, who used to spend more time with the most outgoing and engaged students. However, 5% of the low-income students found it difficult to have access to computers at home. 7% of the students couldn't adapt to the new model and preferred to have in-person lectures rather than sit through a monotonous online presentation, which would wander off their attentions, such as texting and going to get a snack.

## 5 Conclusion

The study, exemplified with translation course, clearly described in-and-out-of-class activities in the flipped classroom model and objectively examined students' performance throughout a year. The one-year teaching experiment revealed that the flipped classroom model fostered better relationships, greater student engagement, and higher levels of motivation, and the teacher was excited by the opportunity to elevate his/her teaching practice and the profession. However, there are some tremendous challenges posed to the teacher: (1) how to explain a concept in a bite-sized video (such as examples used, the pace, the visual representation, and the aligned assessment practices) and how to extend these activities into class room; (2) how to develop the teacher's teaching transferring ability, communication ability and teaching evaluation ability. Besides, flipping classroom runs the risk of being in a false battle between teachers and technology, content knowledge and skills acquisition. Therefore, with video lessons, interactive simulation platforms and online tools continuing to multiply in information age, how to control these to fulfill their potential without fearing of standardization and deprofessionalization of instructional videos and exhausting the students further is needed for additional researches.

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# The rise and rise of blended learning

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Blended and open learning strategies continue to increase in importance for mainstream university learning and teaching. The primary reasons for this growth concern ongoing debates about costs of face-to-face lectures and tutorials and resulting economies of scale; demands for more student-centred and flexible approaches, providing students with more choices in learning; technology ubiquity, portability and their affordances providing solutions to identified student needs; and the impact of MOOC experiences and lessons learnt, rolling back into mainstream teaching. Based on case study analysis, this paper examines 25 years experiences across four universities in developing blended and open learning solutions for predominantly mainstream campus-based education and identifies longer term impacts on changing core practices in those institutions. The first case explores the impact of distance and open education courses and course resources and activities re-purposed to replace conventional on-campus teaching; the second a re-engineered continuing professional education course converted to blended learning; the third describes how a conventional course structure, quality assurance and sustainable improvements were made through the introduction of blended and online solutions; and the fourth case explores the impact of an institution's use of MOOCs as a catalyst to effect changes in mainstream face-to-face courses and programs. Arising from the cases described, the paper identifies key concepts that support improved opportunities for success in adopting blended learning. The paper concludes by outlining a curriculum design framework, based on recent research and practice that facilitates sustainable and transferable improvements to learning and teaching in universities adopting blended and open learning strategies.

*Keywords:* blended learning, technology affordance, curriculum design

## Introduction

Blended learning and in particular, flipped classrooms have become the *mot-du-jour* in delivering higher education in recent years. The reasons for this focus are multiple. What this paper illustrates is that quality blended learning has been practiced in higher education for several decades. What is more important is not the delivery method itself but underlining sound pedagogy and curriculum design. This paper outlines case studies of good practices in blended learning in four universities across 25 years and concludes with an effective curriculum design framework to support future blended courses.

### **Case study One: Distance course re-engineered for blended on-campus delivery**

A distance course in microbiology was developed to enable practising nurses in rural and regional Western Australia to upgrade their Nursing Diploma to degree status (Fox & Edwards, 1990). Materials developed, included weekly video presentations (laboratory demonstrations and short lectures) broadcast on Golden West Network, a regional television station, activity-led print-based study guides and resources and later, a series of computer problem-based scenarios via augmented learning exercises (Jonassen, 1996), which enabled students to work through cases and make decisions regarding, for example, different ways of collecting and storing urine samples for laboratory analysis. The decisions students made were logged and individual feedback

given on the consequences of the decisions they had made. The distance course was adapted for use with the Open Learning Agency of Australia (OLA) in the mid-1990s (OLA, 1993). Feedback on the course from distance students was positive and resources and the teaching methodology used in the distance mode was considered worth adapting to support on-campus teaching (Edwards, Fox & Philips, 1997).

The microbiology course was taught to a large number of students in health sciences, with considerably increased numbers (750) in the early 1990s. The course was a core as well as a service/elective unit of study for various health related degree programs. The distance materials were initially made available to supplement the on-campus course. The print-based study pack, which included resources for the course, activities and simple tests with feedback and answers; links to the videos and additional references, to enable students to self-study as well as self-monitor their progress through the course was placed in the university bookshop and sold to students at cost. The videos and computer-based case scenarios were placed in the AV section of the library, for internal use by on-campus students. The decision to trial using the distance resources to take the place of certain components of on-campus course delivery was made following positive data collected from students using the materials, the number of sales of the print-based study pack, and the number of uses of each of the videos held in the library. The VHS videotapes needed to be replaced several times in each semester, due to heavy usage and subsequent wear-and-tear. Students were asked to review the videos for each week and to address activities set in the study packs before attending the large lectures. In the lectures, students were placed in groups to discuss answers to the tasks set prior to class and to raise questions. Areas requiring further clarification, were supplemented, as needed, by a review of sections from the video. The lectures, using this method became more interactive. Students took some time to get used to the changed format, but broadly appreciated the increased opportunities afforded for more activity, interactivity and reflection (A.I.R.) (Fox & Radloff, 1999) in the lectures and the additional support provided out-of-class. The lectures and tutorials were not only more interactive, but enabled more detailed and enriched matters to be discussed. This approach to teaching created new roles for lecturers and tutors and introduced roles for educational developers and designers, who explored and recommended the changing learning environments that took into account affordances of new technologies and new practices.

### **Case Study Two: Civil Engineering first year course converted used PSI**

The civil engineering course in this case study was a service/elective and a core course for a number of different programs in Engineering, taught in the mid-1980s. First year second semester students from multiple degrees, with varied interests, understandings, capabilities and motivations to study were all enrolled together in the same class. The number of students in the course varied from year to year, but generally ranged between 120 and 250. To complete the course, students were required to evidence their understanding of core components of the course by addressing tasks and problems set, questions in the form of multiple choice and short open ended questions, all set in authentic contexts related to civil engineering.

The course was taught using traditional methods of lectures, focussing on delivering and contextualising content, followed by tutorials, clarifying content introduced in the lectures and providing students with opportunities to raise questions and seek help for

tasks and problems set. While this traditional method worked well when classes were composed of students from similar backgrounds and interests and when the number of students taking the course was around 20-30, the shift to much larger classes of students from different degrees and capabilities created major difficulties for both students and staff teaching the course. Student feedback highlighted a number of issues in the course, that could mostly be related to the broad student demographic and different student needs, experiences and understandings. For example in the tutorials, some students required detailed help in working through tasks set, while other students needed little help, but just needed to know how well they had done in addressing the tasks set, enabling them to move onto the next stage of the course.

The course delivery was 'flipped', following the Keller Plan, also called Personalized System of Instruction (PSI) (Keller, 1968). The Keller Plan, developed in the mid-1960s provided a systematic framework for self-paced personalised instruction, well suited to STEM subjects (science, technology, engineering and maths) and others subjects, based on structured hierarchical knowledge development and standard stepped testing procedures (Maciea & Usher, 2012).

Core tasks and problems in the civil engineering course, were given to students prior to the start of semester, along with a self-paced study pack about the course and the way the course was delivered. In the first 'lecture' students were informed that there would be no lectures in the traditional sense, but that learners would be required to work through the various exercises in the course manual, answering the tasks and questions set. Student were told that the lecturer would still attend the lectures or at least be in the lecture hall to assist individuals and small groups that needed particular help with the staged activities. Those students who could successfully complete tasks set on their own, could submit their work for early feedback, and then move through other parts of the course at their own place. The study pack, produced by the lecturer provided an interactive, self-paced text, including course content broken down into small units with examples, short stories to illustrate issues and accompanying questions, diagrams and figures to help students work through all the tasks. The lecturer noted that time was needed in the first few sessions to explain and re-explain to students about the format of this course and to assure students that despite having no content driven lectures, they could very successfully work their way through the course to successful completion. Overall, the new flipped method worked well and student completion rates as well as grades were improved. Students who needed help in getting through the course, appreciated the opportunity given to talk to the lecturer, while those students who found the course and the PSI materials easy to work through by themselves were happy to complete the course at their own pace, often well before the end of semester, enabling them to focus on other courses they were taking, that they found more demanding and needed increased effort. The greater flexibility of this course catering for different student interests and capabilities was much appreciated by students, who then put pressure on other courses to adopt a similar method of delivery. Though the term 'flipped' was not used, the practice was certainly similar to recent descriptions of changed teaching. Today, with advancement in technology enhanced learning and teaching, the Keller Plan methods have become popular again, especially in the STEM disciplines.

The success of this flipped civil engineering course led to very mixed responses from academics around the campus. Some very positive, adopted similar strategies themselves, while others expressed concern that this would lead to non attendance in lectures and querying whether students could genuinely learn effectively through this method. In the years that have passed since this PSI approach was adopted in civil engineering, the same criticism is heard, concerning students missing face-to-face classes.

### **Case Study Three: Main Roads Engineering Courses**

In the 1990s, engineers working for the government's main roads department required staff to complete continuing professional education (CPE) courses to update their skills and knowledge and to keep up with changes in state and federal policy and procedures. The courses run were conducted in conjunction with a local university. Course delivery adopted a conventional face-to-face method, requiring staff to attend classes in person. A difficulty arose when increased information was included in the course and the course itself expanded to accommodate this change. However, the engineers required to take these courses were increasingly finding it difficult to attend classes at particular times, due to increased business at work. The course coordinators were becoming more frustrated as they could not identify a time and date that would be suitable for the engineers needing to take the required courses.

An examination of the course content by instructional designers identified that new information was being added to courses but older information/content was not being removed. In addition, the specified objectives of each course had become unclear and unconnected to course objectives as each course had increased the content. Further, the links within course components and between the courses also had become tenuous.

The solution developed by the instructional designers was to complete a curriculum mapping exercise, identifying the core business of each course, interrelationships between course and assessment components and how the courses related and built on each other. Older content of the courses was removed and clear links made between the courses (Fox & Radloff, 1999). Delivery of all courses was blended, enabling the engineers to complete the bulk of the coursework at home or in the office. Face-to-face classes were reduced to two times two-hour sessions. Evaluations conducted identified improvements in grades as well as better retention and pass rates. Again, this case made use of instructional designers and educational developers, as members of the teaching and support team, ensuring that the revised courses achieved the outcomes set, as well as ensuring teaching staff were provided with training and support in the changed delivery practices.

### **Case Study Four: Piloting New Practices through MOOCs**

In 2012, the university decided to strategically fund a selection of Massively Open Online Courses or MOOCs. Reasons for developing the MOOCs was varied, though one core purpose was to trial new approaches, practices, and innovations to developing and delivering higher education, that could later be shared and in part adopted into mainstream on campus blended learning. In the first year of trials, the RASE (Resources, Activities, Support and Evaluation) design model (Churchill, King & Fox, 2013) was adopted, along with a standard-based assessment model, based on Blooms' objectives

and Biggs' SOLO taxonomies (Krathwohl, 2002; Biggs & Collis, 1982) and a 7-point grade scale. Amongst the lessons learnt from these trials, the university was able to evidence the value of adopting a single curriculum design model for the MOOCs that could also translate well into more conventional on campus teaching. The final section of this paper outlines the design framework and the values such a model offers to higher education programs and courses.

### **RASE model for developing courses**

One core benefit of trialling MOOCs as well as other cases in blended learning is the opportunity to trial and evaluate new approaches to higher education learning and teaching. Over the last decades, different design models have been tried and tested in the above cases of this paper and the RASE model builds on this previous work (Churchill, King & Fox, 2013), within an outcomes-based curriculum. An advantage of this model is that it takes into account changing technologies and their evolving affordances, while maintaining core principles that support quality learning and teaching. Fundamental to this model is that quality content and accompanying resources are not sufficient for achievement of the learning outcomes, but that four interrelated core components should include: 1. Resources, for example, crafted content to engage students through experiments, demonstrations, mini-lectures, or readings, etc., enabling students to learn *with*, not just learn *from* resources; 2. Activities for students to engage in using resources and working on tasks such as experiments and problem solving leading through experience towards achieving learning outcomes; 3. Support, including peer, course teacher and technology-platform support to help students solve emerging difficulties as they work through the course; and 4. Evaluation, to provide structured information to guide and enable student' self-progress and to serve as a tool for teachers for understanding what else is needed to ensure that learning outcomes are being achieved. This four-step model supports a range of summative assessment activities to assess and provide a basis for the certification of learning. The RASE model, used in conjunction with an outcomes-based curriculum, has been trialed with blended on campus courses as well as in the MOOC courses and has to date, enabled quality assurance and improvement within and across courses. In line with Biggs (2014) paper on the importance of institutional constructive alignment between programs and courses, the RASE model is now being used to assist in the design and development of programs and courses across the university. The framework with notes in its components is provided in Figure 1 below.

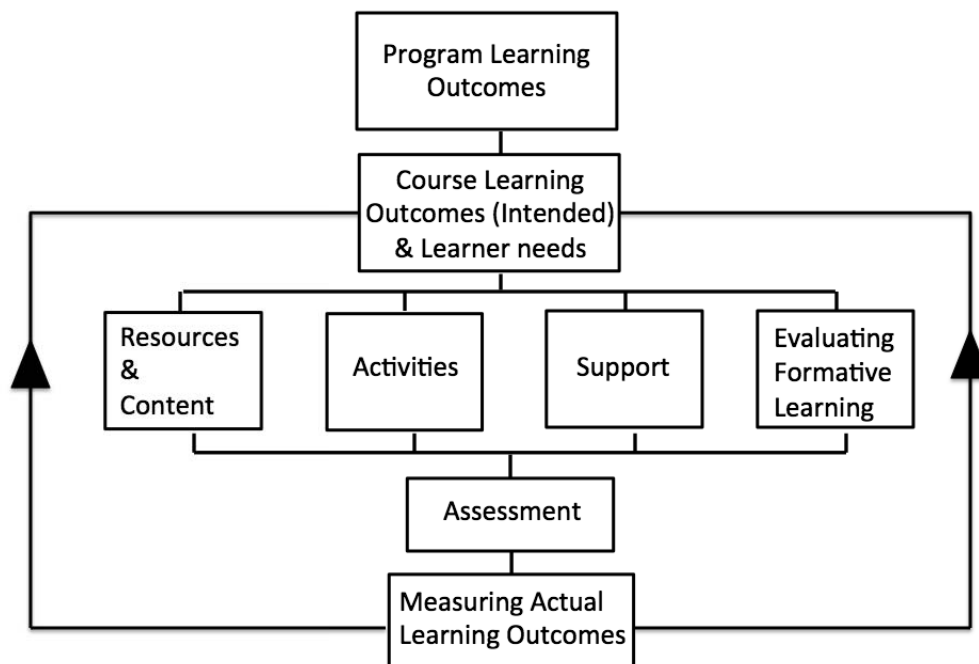


Figure 1: RASE within an outcomes-based curriculum

In Figure 1:

- **Program Learning Outcomes (PLOs)** prescribe the knowledge, attitudes, skills and practices that students are expected to demonstrate in completing a program of study.
- **Course Learning Outcomes (CLOs)** prescribe the knowledge, attitudes, skills and practices that students are expected to demonstrate in completing a specific course. CLOs articulate with PLOs.
- **Learner Needs** are the individual students' needs catered for to ensure their greatest possible engagement in learning.
- **Course Components** are the combination of resources, activities, support and feedback/evaluation (formative assessments) required for full achievement of course learning outcomes.
- **Assessments** measure actual learning outcomes. Assessment methods can be formative or summative.
- **Measuring Actual Learning Outcomes** ensures that the student can demonstrate they have achieved the intended learning outcomes of the course and program.
- **Strategic Intent and Graduate Capabilities.** Strategic intent establishes university-wide aspirations for all programs, and broadly defines what students may expect to experience when undertaking a program at a particular university. Graduate capabilities are the broad knowledge, skills, practices and dispositions that students are required to develop during their time at university. Strategic intent and graduate capabilities are integrated within PLOs.



## Conclusion

There is no one-fits-all model for the design of curriculum, programs and courses, however, to date the RASE model is working to assist in improving the quality of higher education in a growing number of institutions.

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# The integration of micro-lectures into the blended learning discourse in tertiary education

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**Abstract:** Micro-lectures were introduced into the formal educational programmes some years ago in China. Since then, a short video clip, focusing on specific points of knowledge, using state-of-art design, made accessible on learning platforms, is applicable in the blended and mobile learning format, the micro-lecture has been discussed widely and accepted by both the university academics and students. This is, -- especially so in the distance educational institutions. In such distance educational institutions, the students are adults. Learning in multimodality has become a popular approach for the mature students in order to attain their academic mobility and professional advancement.

In this paper, we intend to address our practice of integrating the micro-lectures into our Business English Course. The current study adopts a systemic qualitative framework. This framework will describe and analyze the circumstances and issues concerning the design of the short video clips and integration with the course format, learning support service, learning management, students learning experiences and their impacts on learning and teaching in the blended learning discourse in tertiary education.

**Key words:** micro-lecture; formal education; blended learning; tertiary education

## 1. Introduction

The term Blended-learning is used to name the approach that combines face-to-face instruction with computer-mediated instruction in a unique learning scenario (Graham, 2005; Bonk & Graham, 2006; Howard, Remenyi, & Pap, 2006). Blended learning soon became a hot topic in research field. Education Research Center, Educause, Basbson, Edubentures, Sloan-C Network Learning Institute and other institutions of education research have agreed upon that: the blended learning is the dynamic mechanism to facilitate change; it has the great power and potential to change education status. It has great room for development and good prospects for development (Sloan-C, 2007). In 2009, the result of analysis into empirical studies which was carried out between 1996 and 2008 by US Department of Education (2009) in higher education showed that blended learning is the most effective way to learn, compared with the traditional face-to-face teaching and online learning.

Micro lecture is one of the most important and commonly used ways in Blended-learning. The idea of "micro-lecture" was first proposed by an American senior

teaching designer--- David Penrose in 2008. He named the “micro-lecture” as “Knowledge Burst”. It has been used as a kind of teaching resources embedded in a variety of micro learning environment.

Morris (2009) think, micro lecture concept proposed by Penrose (2008) exists in networking course format. Also, it provides a new, practical classroom teaching mode. Thomas (2009) in his blog online education—introducing the micro lecture format also believes that micro lecture will become an important part of networking course.

Micro-lectures were introduced into the formal educational programmes some years ago in China. Since then, a short video clip, focusing on specific points of knowledge, using state-of-art design, made accessible on learning platforms, is applicable in the blended and mobile learning format, the micro-lecture has been discussed widely and accepted by both the university academics and students. The scholars and teachers in China mainly focus on two aspects of micro lectures: one is video resources, such as the micro lecture resources development and creative approach of designing micro lectures (Ling, 2012); the other is the application of strategy and the effect of micro lecture resources in teaching (Fan, 2012; Fan, Zhang, Bai & Lin, 2012). Compared with other forms of resources, micro lecture integrates text, audio-visual components, multimodality into the classroom teaching and breaks the complex body of knowledge into more fancy fragments to facilitate the interest of learners and enhance learner's understanding. Moreover, micro lecture, because of advantage of being small in size of bits, can be easily transmitted, downloaded, and replayed in a variety of mobile equipment. Micro lecture presents the possibility of changing learning modes of the net generation.

In this paper, we intend to address our practice of integrating the micro-lectures into our Business English Course. The current study adopts a systemic qualitative framework. This framework will describe and analyze the circumstances and issues concerning the design of the short video clips and integration with the course format, learning support service, learning management, students learning experiences and their impacts on learning and teaching in the blended learning discourse in tertiary education.

## **2. Categories of micro lectures and the steps in design**

Following the timeline of application and effect, we divided micro lecture into the following three different categories:

### *2.1 Points of knowledge type*

This type focuses on specific knowledge or illustrates one point. In this type, lecturers dwell upon a specific point, display examples, or explain the steps. This type of video clips can be flexibly applied before class, in class and after class.

### *2.2 Creating learning context type.*

Micro lecture of this type creates a learning environment or creates task environment or

targets the inspiration of thoughts. Through the video clips, it creates background of knowledge. Also, it provides the active models for role play. Within a relative, continuous period of time, the students are required to cooperate, raise questions and seeking answers for them by using video. This type is to help students conduct deep learning and improve their ability of inquiry.

### *2.3 Presentation and the evaluation type.*

When learning is completed, the students need to submit a videoed assignment for meeting the requirements of the course. In the assignment, the students have to display and interact and evaluate themselves with peer students. This sort of video making is implemented throughout the whole learning process. After the groups of students choose their own topic, they are required to complete their own task design, do the independent learning, cooperation and consultation with peer students in the course of learning.

In design of the lecture, Penrose put forward five steps of building micro lecture, which we followed in our design:

- Lists the core concept that teacher intends to transfer in the classroom teaching. The core concept will constitute the center of micro lecture;
- Write a 15-30 seconds introduction and summary to provide context for the core concept;
- Record the above content by the microphone or network camera and the final video lasts for 1 to 3 minutes;
- Guide students to read or explore design task and help students to learn the material content;
- Upload the teaching video and Curriculum Task to the course management system (Shieh, 2009).

## **3 The Study**

### *3.1 Background and rationale*

For the distance educational institution, the students are working adults. Some of them hoped that they could shift their working track into the business environment in future. To satisfy students' different requirements, the five objectives of the Business English Course are raised out:

- (1) Good English listening, speaking, reading, writing, translating skills, capable of translating common business documents accurately.
- (2) Familiar with international business practices and the operation in the import and export trade; Capable of writing and translating international business documents.
- (3) Familiar with the operation and application of office software.
- (4) Have the management capacity of helping manager in the company.
- (5) Capable of participating formal international trade communicative activities.

Century Business English course book published by Dalian University of Technology Press was used. The design of short video clip first focus on essentials of the business, and then creates a learning environment and task environment to inspire students to think, to explore, and to find answers by asking questions on the videos.

### 3.2 Method

Questionnaire and interviews have been adopted in the current research.

#### 3.2.1 Participants

Two classes of full time learners of the Jiangsu City Polytechnics partake the research: Class 101 and Class 102. Each class has 38 students. Class 1 is set as control group, and Class 2 is experimental group. For Class 1, the teacher adopted the traditional teaching mode. However, for Class 2, the teacher introduced the new teaching pattern using micro lecture resources described as Diagram 1.

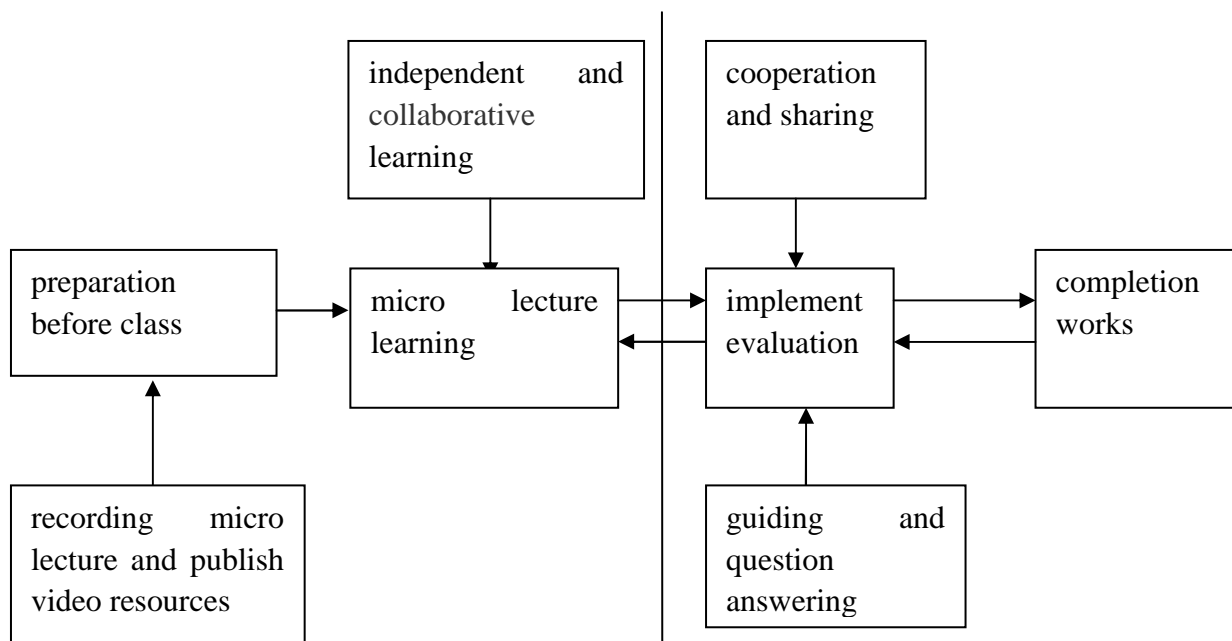


Diagram 1. Micro lecture resources teaching pattern

#### 3.2.2 Data sources

When the experiment was implemented, we used questionnaires and interviews to collect learners' favorite type of micro lecture resources, utilization of resources and the degree of knowledge internalization and the change of learning interest. After that, semi-structured, in-depth, one-on-one interviews were conducted. A list of open-ended questions was generated to be guidelines for the interviews about participants' experiences and perceptions of teaching using micro lectures. Interview questions were designed based on the research questions with the focus on students learning

experiences and micro lectures' impacts on learning and teaching. Participants were asked questions such as their experiences and perceptions of micro lecture teaching in general, their likes and dislikes about micro lecture teaching, their opinions of learning support service, their learning management strategies, the difficulties they encountered for online communication, and reasons they would use or not to use micro lecture in their learning.

### *3.2.3 Data analysis*

The unit of analysis for the study was individual interviewees. All interviews were recorded using a digital audio recorder, and the recordings were transcribed and the transcripts were analysed following the constant comparative method (Corbin & Strauss, 2008). The data were coded into different categories as learning support service, learning management, students' learning experiences, micro lectures' impacts on learning and teaching, until themes emerged from the data as related to the research questions.

### *3.3 Implementation of the micro lecture experiment*

Based on Business English Course, we implemented flip classroom teaching pattern by using micro lecture teaching resources.

#### *3.3.1 The preparation before class:*

Based on the learning content and learner characteristics, the teacher analyzed the teaching objective and sliced the knowledge into small knowledge unit which is relatively complete and interrelated.

The teacher used the screen recording software, such as Camtasia Studio 8.0 video recording. In the recording process, the author paid attention to use the screen brush tool to emphasize the important and difficult point, and then used the cloud integration and other platform or Web2.0 tool to share the micro lecture resources with learners.

#### *3.3.2 Independent learning of the Micro lecture resources*

Before attending the experimental class, learners can use a variety of mobile devices to learn micro lecture experiment resources independently. In this process, a variety of social tools were used to do collaborative learning with peers. In experimental course, learners also solved the problems by learning the micro lecture resources.

#### *3.3.3 Implementation evaluation*

In the experimental class, the teacher designed the relative tasks according to the experimental goal. Quiz creator 4.5 was used to embed different questions and popped quiz to guide students to complete their tasks. In this process, the micro lecture was designed to intelligently diagnosed and led students to start their autonomous learning. By answering questions appeared in the micro lecture, students had clear self-evaluation and the game-like design triggered them to target the last trophies of their war of

learning. If the learner did not encounter problems in learning process, he would directly move into completed works stage. If there were questions or problems in the process, targeted learning of micro lecture resources could be learned again. Also, guidance and advice from the teacher could be sought. After the problem solving, the completion stage started

#### *3.3.4 Assignment for evaluation*

The videoed assignments were submitted by students according to teachers' requirements. They could choose their own topics, work in groups, contribute their ideas and cooperate with teammates. They were asked to hand in recorded assignments in their own way, such as Camtasia Studio8.0 or Snagit V91.2.0.

### **4. Results and Discussion**

In the construction of micro lecture resources of the Business English Courses, the teacher tends to provide three types of resources: guiding resources, content resources, and process resources. Content resources include media materials and case study videos; process resources include experimental works. The results show that 90.18% of the learners like case study videos, because this kind of resources help them most. In addition, learners can use mobile devices to learn anytime, anywhere.

The learning support service undertakes online tutoring functions, and provides enough learning support and learning path. The learning support service includes: learning tool, synchronous and asynchronous discussion and collaboration, different levels of practice, feedback and related learning resources. It can avoid the fragmented learning content which misleads students' way. At the same time, the learning support service needs to enhance the use of communicative tool in synchronously and asynchronously online communication between teachers and students, so that to keep the continuity of formal and informal learning.

The learning management comes from both teacher and online peers. Students cooperate and collaborate with peers. They adjust their own learning pace according to their time schedules. Compared with the traditional paced learning schedule, the blending learning of micro lecture provides flexible learning time which enhances the better management of learning.

In the aspects students' learning experience, control group of learners admitted that :

"The provided traditional resources (Course book) are boring, too many words, cannot remember after reading, cannot attract attention, and sometimes cannot find the tools or steps." The experimental group of learners said that micro lecture resources "are based on knowledge point, is particularly suitable for learning, watching a video clip can guide the operation to practice; the screen brush tool can help students to quickly find the specific location of knowledge point". "These micro lectures can help me to use the

free time to learn, like watch entertainment news, no need to have a block of time for preparation”.

The experiment benefits both the teacher and students by providing problem-based learning. The integration of micro lecture into the blended learning prompts the use of technology such as Camtasia or Snagit. Also, the integration of micro lecture to empower blended learning could also shape pedagogical design by bringing close to students' active engagement.

The learner's attention is constantly wavering. So when teachers recorded micro lecture resources, the hint message appeared on the screen helped the learner to form the conscious attention to the content, thus leads to the deep understanding and meditations.

In addition, the teacher played the role not only as a facilitator and guide in the implementation of micro lecture resources, but in the whole learning process, as an indispensable learning partner. Because autonomous learning is the key to the success of flip classroom experimental teaching of micro lecture resources, teachers' guidance of social networking tools can enhance learners' learning motivation and learning efficiency in the course of study.

## **5. Conclusion**

In this paper, we have described the three categories of the micro lecture and practice of integrating the micro-lectures into Business English Course. The current study adopts a systemic qualitative framework. By exploring the experiment of micro lecture resources teaching pattern, the four research goals were aimed: 1. To explore the learning support service, 2. To probe into the learning management 3. To discover students' learning experiences 4. To grope for micro lectures' impact on learning and teaching. The statistics indicated that great majority was satisfied with the micro lecture learning. From the above findings, the flipped classroom experiment based on micro lecture learning resources optimized the learners' learning process. We believe that it is time to integrate micro lecture into formal learning, and use them to promote informal learning.

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# **Leading and managing change in education: Putting transformational leadership into practice**

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## **Abstract**

Educators today are working in a rapidly changing environment. As change creates immense opportunities for improvement, leading and managing changes became an essential responsibility for educators. This paper analyzes a scenario of an educational change in a university and illustrates how educators lead and manage the change. The scenario involves the launch of a Community Health Care Education programme which aims to train different levels of health care personnel to provide community-based nursing care. The programme has three levels, namely, Higher Diploma in Nursing Studies for the training of Enrolled Nurses (in face-to-face mode), Diploma in Health Studies (Community Health Care) for the training of community health workers (in distance learning mode), and Home Health Watch Programme for the training of community volunteers (in distance learning mode). The programme signifies a large-scale initiative in nursing education and is presented by the Division of Nursing and Health Studies of The Open University of Hong Kong. Transformational leadership, characterized by its distributed nature and capacity development objective, is adopted to facilitate change. This type of leadership is highly desirable for staff development and yields long-lasting results. With reference to Lewin's three-stage model of change, the change process is divided into the unfreezing stage, changing stage, and refreezing stages. Through force field analysis, the driving and restraining forces that influence the outcome of change are modified to achieve the desired goal. The change is driven by transformational leadership through its four components: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Strategies such as sharing of leadership, practicing collegiality, motivating and empowering the staff, providing training and support, addressing the sources of stress and anxiety, and providing recognition are implemented. The change is considered effective. The present experience provides valuable implications for educators worldwide to initiate educational change and to positively affect their educational practice.

**Keywords:** education change, transformational leadership, Lewin's three-stage model of change, force field analysis, distance learning

## **Introduction**

Contemporary educators are working in a rapidly changing environment. Such a change benefits students as well as educators and educational institutions. As a result of the changing educational landscape, the leadership and management responsibilities of educators continuously increase. This paper analyzes an actual educational change scenario that occurs in a university and illustrates how the educators lead and manage the change.

With the advocacy of ageing in place and the prevalence of non-communicable diseases in Hong Kong, the provision of community-based nursing care is strongly required. There is a need for a structured education programme which provides comprehensive education to prepare different levels of health care personnel (i.e., Enrolled Nurses, community health workers, and community volunteers) to perform

various health care work in the community. However, no structured education programme exists for this purpose. In 2011, the Head of the Division of Nursing and Health Studies of The Open University of Hong Kong proposed the launch of a community health care education programme that included three levels. The proposal was enthusiastically accepted and funding was provided to the university. The new programme was launched in 2012.

An Associate Professor was assigned as the programme coordinator and the change agent. The change involved the launch of three levels of education programmes, namely, Higher Diploma in Nursing Studies for the training of Enrolled Nurses (in face-to-face mode), Diploma in Health Studies (Community Health Care) for the training of community health workers (in distance learning mode), and Home Health Watch Programme for the training of community volunteers (in distance learning mode). The programme aimed to train 650 Enrolled Nurses, 500 community health workers, and 1500 community volunteers over 5 years. Related works included programme development, course development, professional accreditation, establishment of training facilities, recruitment of teaching staff, enrollment of students, arrangement of practicum, quality assurance, promotion, and marketing. The new programme signified a large-scale initiative in nursing education and was a great challenge to the division.

The Division of Nursing and Health Studies is a well-structured academic unit of the university. The division adopts a flattened pyramid structure where the Head and the Associate Head are situated at the top followed by a number of programme teams and committees at the same level. Each programme team and committee has a leader. The division head presides over the leaders and oversees major issues in the division. Leaders direct their own groups and manage assigned tasks. The division accommodates initiatives and suggestions, and has made various changes in the past years for growth and improvement. The flattened pyramid structure, which is less hierarchical than the traditional bureaucratic structure, contributed to the possibility of making changes. This structure also supports the implementation of transformational leadership which aims to build capacity and encourage development of the staff. At the time when the change was made, the division consisted of 29 academic staff, 1 technical staff, and 3 clerical staff.

This paper illustrates the adoption of transformational leadership in the division to drive the change. The significant factors, based on Lewin's three-stage model of change, which influence the outcome of change are modified to achieve the desired goal.

### Leading and Managing Change

A leader identifies organizational goals, values, and intentions by influencing individuals, whereas a manager ensures that these things are practically applied. The predominant leadership style determines the management of change, as well as the achievement of improvement and effectiveness (Hallinger & Heck, 2003). In fact, sound strategic leadership is being identified as an essential factor to facilitate staff navigates change in higher education (Drew, 2010).

Transformational leadership, with an emphasis on capacity-building among followers, was selected to achieve effective change. Transformational leadership was first explicated as a theory in the general literature of the 1970s and 1980s. Its application in education started in the 1990s as an opposing reaction to the top-down policy-driven changes that prevailed in the 1980s. The application of transformational leadership in school has increased since, and considerable research in education employed the transformational leadership model (Hallinger, 2003).

Transformational leadership is a theory of leadership that is grounded in understanding individual needs instead of coordinating and controlling individuals to realize desired goals (Hallinger, 2003). A bottom-up approach is used to influence people, enhance motivation, and increase performance (Hallinger, 2003; Leithwood & Jantzi, 2000). Transformational leadership has four components: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (the 'Four I's'). These four components direct the behaviours of a transformational leader and suggest ways how a leader transforms the followers to achieve common goals (Bass, 1998; Bass & Avolio, 1994).

Idealized influence is the degree to which the leader acts as role model for the followers. The leader demonstrates high standards of ethical and moral conduct which the followers learn and practice on others. It is through this mechanism that the leader gains more respect from the followers and achieves a higher level of influence.

Inspirational motivation is the degree to which the leader communicates a vision for the future which is appealing to the followers. The leader inspires the followers by providing meaning and value for the work at hand. Such practice makes the followers to be optimistic about the future and drives them to devote more effort.

Intellectual stimulation is the degree to which the leader encourages innovation and creativity. New ideas from the followers are welcomed rather than criticized. The leader supports questioning the current state and discarding ineffective conventional practice.

Individualized consideration is the degree to which the leader respects the followers and addresses their needs through coaching and mentoring. The leader listens actively, provides learning opportunities, delegates tasks, arranges challenges, maintains open communication, recognizes individual difference, and celebrates individual contribution (Bass, 1998; Bass & Avolio, 1994).

Although transformational leadership is time consuming in implementation and requires considerable effort, this leadership style is highly desirable for staff development and yields long-lasting results (Leithwood, Jantzi, & Steinbach, 1999). In any change scenario, staff development is an important concern because well-developed staff is essential for achieving a sustainable change. Transformational leadership was considered appropriate to the situation considering the rapid growth of the division and the numerous members of the academic staff who lacked experience in programme development.

### Implementing a Planned Change

The use of planned change signified the intentional attempt to increase chances of achieving success (Baulcomb, 2003). Kurt Lewin (1890-1947) was a seminal theorist of change whose work significantly affected the field of change theory (McGarry, Cashin & Fowler, 2012). Lewin's three-stage model of change indicates a planned change as a three-stage linear process, which consists of unfreezing, changing, and refreezing. The unfreezing stage involves overcoming inertia and breaking down the existing mindset, as well as motivating individuals and preparing them for change. The changing stage entails supporting individuals to make change and raising their awareness of the positive aspects of change. The refreezing stage involves reinforcing new behaviours, crystallizing the mindset, and stabilizing the change (Lewin, 1951). In short, the unfreezing stage renders the change possible and the refreezing stage makes the change permanent.

Although developed 50 years ago, Lewin's model remains widely used in different disciplines as a guide for change (McBrien, 2009; McGarry et al., 2012; Schriener et al., 2010). Lewin's model is easy to use, systematic in nature and allows an easy identification of progress across the stages (Schriener et al., 2010). The model is effective in informing decision-making and fosters the feasibility and acceptability of change (McBrien, 2009). The above characteristics make Lewin's model a desirable choice for change guidance. It has been argued that Lewin's model requires a relatively slow rate of change, as well as consensual and learning foundations which make the model unsuitable to the demands of rapid changes today (Collins, 1998; Watson, 1997; Wilson, 1992). However, building foundations is necessary in the achievement of a sustainable change and is a desirable value in this scenario. With reference to the above analysis, the foundation of this change was based on the work of Lewin (1951).

### The Unfreezing Stage

Change is achieved by moving from an actual to an optimal situation to accomplish a goal or solve a problem. Lewin emphasizes to the necessity of identifying the totality of influences that developed the situation to understand it (Lewin, 1947). A force field analysis is a powerful tool to manage change during the unfreezing stage. This approach emphasizes that the equilibrium of every situation is maintained by two opposing forces: the forces that drive movement toward a change (driving forces) and those that block the movements toward a change (restraining forces). The environment is known as 'field', where the force field is in equilibrium prior to any change. For change to occur, the equilibrium must be upset either by strengthening the driving forces or by weakening the restraining forces. A key determinant in achieving successful change is ensuring that the driving forces outweigh the restraining forces (Lewin, 1947, 1951). Therefore, the main tasks during the unfreezing stage are identifying the major forces of change, as well as developing strategies to strengthen the driving forces and weaken the restraining forces.

*Identifying the Driving Forces.* Having the experience of running nursing education for more than 15 years was an advantage of the division. Past experience on nurse training can be adapted to develop a comprehensive programme to train nurses, community health workers, and volunteers. The network with various health care institutions can be used to facilitate the arrangement of practicum for the new programme.

Staff represents a valuable resource within any organization. The division had the advantage of having recently expanded. Over the 2 years before the change took place, the number of academic staff increased from 16 to 29. The division had adequate staff to support the change. The main concern was involving and developing the staff to make the change. In fact, cooperation and involvement of the entire staff is essential to achieve lasting and effective change (Baulcomb, 2003). In this scenario, the availability of staff was the most important driving force and must be significantly strengthened.

*Identifying the Restraining Forces.* Every change in education involves the institution and individuals. Individuals who face change may develop negative feelings (Morrison, 1998), which can lead to adverse effects when not properly addressed. The stress that originated from the university and the donor was a major negative feeling among the staff members. The change involved a significant project sponsored by a donor that had to be launched within a short time (1 year). The high position of the university and the donor formed a structural power (Hoyle, 1986), that induced stress on

the staff and affected their performance during the change.

The anxiety in response to actual threat and arose from the perception of an unknown situation was another negative feeling among the staff. In fact, anxiety is a common negative feeling toward change (Morrison, 1998). Several new staff lacked knowledge on programme development, course development, delivery of distance learning courses, and other school administrative procedures. Anxiety was induced when the staff anticipated that they have to engage in unknown situations.

Some staff resisted as well, which was understandable because the need for change remained unclear. When the change was initiated, the division was performing well with a satisfactory student intake. Furthermore, the change was perceived to create a disruption from the normal routine. Although different individuals react differently toward change, some individuals will always resist it (Baulcomb, 2003; Morrison, 1998). Therefore, finding ways to seek support from individuals was necessary to reduce resistance and improve work efficiency.

*Strengthening the Driving Forces.* To practice individualized consideration and support staff development, a number of strategies were performed. Transformational leadership emphasizes that leadership is shared (Hallinger, 2003; Leithwood & Jantzi, 2000). Rather than one individual coordinating and controlling all activities, transformational leadership focuses on creating a favorable environment and stimulating change through bottom-up participation (Day, Harris & Hadfield, 2001). As the change was associated with multiple tasks, a number of work groups were formed and the entire staff of the division was involved. A leader was appointed for each work group based on experience, expertise, and preference. Strategies were performed to utilize the experienced staff; this simultaneously provided growth opportunities for the new staff. In the groups led by experienced staff, leaders could share their experience with their members who relatively lacked experience in programme development. In the groups led by new staff who committed to lead a group, leaders were supported by the experienced staff as group members. Group size was carefully determined, such that groups were sufficiently large to handle the assigned tasks yet small enough to maintain internal communication and cohesiveness.

Intellectual stimulation was also adopted and the leaders of the work groups were supported to practice in an innovative and creative way, as long as the decision was made through discussion and consensus. Dominance and coercion were avoided.

*Weakening the Restraining Forces.* Strategies were performed to reduce the stress among the staff due to the tight timeline. In accordance with the project proposal, the programme coordinator described the three programme levels in detail and specified the launch date for each level. The three levels were re-scheduled to be launched one after another to make the timeline to be realistic. Effort was exerted to gain endorsement from the university and approval from the donor. The approved proposal was communicated to the entire staff. Change actions were prioritized. By doing so, the major restraining force had been eradicated.

Strategies were implemented to overcome anxiety among the staff. Through inspirational motivation, a transformational leader creates the future and encourages individuals to envision that future by extending their aspirations (Hallinger, 2003). The programme coordinator explained the new programme, as well as its future development and the potential benefits to the staff, and highlighted their contribution to the new programme.

Individualized consideration serves to address the needs of individual staff and respect their opinions. Training, which aims to equip the staff with necessary skills for performing new responsibilities, is regarded as an effective means of reducing the anxiety associated with new responsibilities (Talbot, 1993) and of smoothening the initial chaotic stage of the change process. Therefore, a series of training workshops on topics such as development of distance learning course materials and coordination of distance learning courses were conducted. Training content was reinforced during subsequent meetings as well. Scholars have argued that learning something new, which aims to overcome the threat of anxiety towards an imperative change, also induces anxiety. Schein (1996) names the former as 'survival anxiety' and the latter as 'learning anxiety'. Learning anxiety arises from the exposure of an individual's incompetence resulting in the individual's assertion that the change is not important. Since learning anxiety will eventually transform into resistance to change, effort has to be paid to reduce learning anxiety. Previous successful examples were presented to the staff members and they were reassured that assistance would be available whenever necessary. In addition, strategy was performed to respect the opinions from staff members. Their feedback was collected and used to modify the plan of change. It was noticed that the staff were more willing to participate in the change when their voices were heard.

Although resistance is a common and natural coping mechanism against the rising instability from change, strategies can be adopted to facilitate the acceptance of the change by the individual (Schoolfield & Orduña, 2001). A way to seek support from individuals, particular those who resist change, is to make them know their involvement and visualize their ownership. When the change process is participative and collaborative, it can result in an effective outcome (Burnes, 2004; Lewin, 1947). Thus, a bottom-up approach that involved most of the staff and sought to influence people was adopted. Although the change was introduced from the top, the fact that the execution was carried out from the bottom was clarified.

### The Changing Stage

The main tasks of this stage were to impress individuals the positive aspects of the change and support individuals to participate in the change (Baulcomb, 2003; Lewin, 1951).

Inspirational motivation was adopted to articulate a clear vision and value for the change. The goals of individual work groups were linked to the goals of the division to motivate the work groups and enhance their commitment to the assigned tasks (Hallinger, 2003). A few work groups were arranged to commence before the others. The success of these groups could build up the momentum of change. Regular meetings among work groups were held, which enabled the work groups to visualize their interdependence and functioning in a holistic way to achieve goal. Individual staff were fully informed on the progress of the change and attainment of certain milestones. Such strategy can facilitate the development of a sense of achievement towards the change among the staff. Staff who demonstrated satisfactory performance in the initial stage were assigned with higher level of responsibilities, which served as a strong indicator of their successful skill mastery in the previous level. As a result, they were further motivated to continue their satisfactory efforts.

Intellectual stimulation was adopted to support initiatives. The leaders of various work groups were empowered with the autonomy to propose initiatives, delegate the

tasks within their own work groups, organize their activities, plan their schedule within the programme timeline, and solve their own problems. The programme coordinator, who acted as transformational leader, adopted a supportive role in assisting their development. Instead of providing strict instructions for the staff to follow, the programme coordinator provided information about the project, conducted training of relevant skills, gave advices whenever necessary, and intervened only when things went wrong or were beyond schedule. A supportive environment is necessary to enhance motivation and commitment to change (Fitzgerald, 2002), and a feeling of empowerment enabled the staff to achieve effective outcomes.

Idealized influence was implemented to achieve a high level of influence. The programme coordinator joined some of the work groups, participated with confidence and competence, demonstrated strong commitment to achieve the goal, behaved in consistent with the vision, and acted as a role model for others. It was hoped that the staff would take pride in being associated as a group and would be motivated to achieve a higher level of performance.

### The Refreezing Stage

The main task of this stage was to re-establish the equilibrium and to stabilize the change (Lewin, 1947, 1951). Process and outcome evaluation were performed to ascertain the degree of achievement of the change. It was noticed that the programme was delivered on schedule. Students' academic performance and skill competence level were satisfactory. Numerous staff acquired skills in programme development and were confident to engage in similar activities in the future. Most of the stakeholders were satisfied with their involvement and the outcome of the change. The evaluation provided evidence to support the success of the change and also resulted in suggestions for further improvement. Working protocols and guidelines were developed to specify the essential activities of programme development, the roles and responsibilities of the staff in different positions, and the workflow of various activities. Lastly, recognitions were provided to the staff who were involved in the change. The idea of individualized consideration was applied. With all these efforts, a new shared culture was established.

### Conclusion

Although change does not necessarily lead to improvement, improvement arises from change. Leading and managing change is a part of every educator's role, from minor changes that improve day-to-day operation to major changes that bring long-lasting effects to the education institution. This paper analyzed a scenario in which transformational leadership was adopted to achieve educational change in a university. The four components of transformational leadership including idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration were applied. To be specific, collegial approach was used, and leadership was shared among the staff. The transformational leader established a favorable environment, created vision, supported and motivated the staff, spent considerable time for staff development, empowered the staff, and provided recognition to the staff.

Lewin's model provided useful guidance on unfreezing the existing equilibrium, moving toward the desired change, and freezing the change to form a new equilibrium. Force field analysis is a powerful tool for managing change and is effective in differentiating the forces that drive or restrain change. The present scenario, through force field analysis, demonstrated that change can be achieved by incorporating the



driving and restraining forces within the planning and implementation of the change. Strengthening the driving forces and weakening or removing the restraining forces is an essential approach. Considerable effort must be devoted to handle the most significant driving and restraining forces.

Overall, the change was considered effective. The present experience demonstrated that change, even though large in scale, can be achieved through careful planning and consideration. Involving staff at all levels and in every step encourages staff development and allows them to gain ownership of the change, which can lead to positive outcomes.

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# Strategic development for advancing ODL institutions: A SWOT analysis from the Open University of China

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## Abstract

The role of open and distance learning institutions has been evolving in the 21<sup>st</sup> century worldwide. In 2012, the Chinese government decided to establish the Open University of China (OUC) on the basis of Chinese Radio and TV University System for promoting lifelong learning and a learning society. In the same year, OUC puts forward its 10-year strategy aimed at being one brand-new member in the Chinese higher education system, one of the world's top open universities with Chinese characteristics and one pillar of Chinese learning society. This paper aims to find out the strengths, weaknesses, opportunities and threats of OUC's future development through SWOT analysis, and provide strategic options. Key research findings include the following: (1) Open philosophy, unique function, nationwide network, advanced use of technology and increasing international influence are its Strengths. (2) Unestablished modern university system, incomplete quality assurance, ineffective management, low social prestige and shortage of funding sources are its Weaknesses. (3) Government's determination to build a learning society, huge social demand for continuing education due to the economic and demographic change, rapid development of internet and information technology are its Opportunities. (4) Emerging competitors such as the moocs providers of conventional university and internet companies, disorder of distance education market, the supreme value of elite education are its Threats. (5) There are four best feasible strategic options, namely ST, SO, WO, WT strategies. And a combination of SO and WO strategies should be the best option given the current situation of OUC. (6) The optimal recommendations for advancing OUC are as follows: to accelerate capacity building while gaining more support from the government and society, to expand the openness and social involvement of the education network, to promote degree and non-degree education by building a good credit transfer mechanism, to facilitate in-depth integration of technology and education, to raise the quality and improve the management, to put connotative development as the core task of development, as well as to facilitate international cooperation and exchanges, etc.

Key words : Strategic Development, ODL institutions, SWOT analysis, the Open University of China

## Introduction

The development of ODL institutions has been influenced by multiple factors, such as national political will, economic development, technological revolutions, social demands and educational development. In the 21st century, with the advances in

information technology and knowledge economy, many ODL institutions worldwide have carried out strategic reforms, attempting to play a new role to cope with the opportunities and challenges. Chinese ODL institutions are no exception. In 2012, the Chinese government initiated the reform of Central Radio and TV University (CRTVU) and established the Open University of China (OUC) on its basis, expecting it “to meet the diversified and personalized learning demands of the public and contribute to the construction of open and flexible lifelong education system.”(Ministry of Education, 2012a, p.1) Shortly after that, the OUC put forward its 10-year strategy aimed at “being one pillar of Chinese learning society and one of the world’s top open universities with Chinese characteristics.”(OUC, 2012, p.7) In this context, it is crucial to find out strategic options to achieve the above aims, which inspires this research.

This paper consults the existing related studies including Research Report on Distance Education and Higher Education in China (Yang, Z.J., 2013) and Research on the Status Quo of Chinese Radio and TV University System (OUC, 2014). These studies analyze the historical development and current difficulties of Radio and TV Universities but fail to give an in-depth analysis of the OUC’s strategic development. Therefore, this paper first finds out the possible internal and external attributes influencing the development of the Open University mainly through PEST analysis and Core Competitiveness analysis, then identifies opportunities, threats, strengths, weaknesses of OUC’s development after the questionnaire survey and interviews with experts, and at last it arrives at four best feasible development strategies through cross-analysis of the strengths, weaknesses, opportunities and threats. With the above findings, this research hopes to provide inspiration and reference for the OUC’s future development policies.

## **Research Background**

### *The Advancing of ODL Institutions in China*

According to the use of transmission technology, the ODL development in China can be divided into three stages. The first stage (before 1979) is correspondence education, based on postal communication; the second one (between 1979 and 1988) is radio and television education, depending upon video and audio recordings, radio and TV; the third one (from 1999 till present) is modern distance education, using Internet as the main medium. The Chinese ODL development is currently in the third stage, the most prosperous and complicated one, with a considerable number, variety and scale of institutions, vast market and handsome financing.

Since the beginning of the 21st century, China has seen the boom of Internet and web-based education. According to the report released by Baidu (2013), one of the biggest Internet companies in China, the market value of China’s ODL increased from 20 billion yuan to 70 billion yuan between 2006 and 2012, with an average annual growth rate of 28.47%. At present, there are a considerable number and variety of ODL institutions in China. (See Table 1) Those institutions can be classified into public and

private by ownership, unitary and comprehensive by scope of service, pre-school, K-12, higher and adult institutions by education level and target group. A lot of well-known ODL institutions in China, especially those private ones, were established in early 21st century, and some of them have gone public, which demonstrates their great stride in development.

Table 1 Some facts about ODL institutions in China

Type	Level	Example	Target group	Ownership	Scope of service	Launch time	Gone public or not
Unitary	Pre-school education	Baby bus	Preschoolers	Private	Early Childhood education	2009	—
	K-12 education	TAL Education Group	School-age children and teenagers	Private	Subject tutoring at the level of primary and secondary education	2009	Yes
	Higher education	CRTVU	Adults	Public	Degree and non-degree higher education	1979	—
		School of Distance Learning, Peking University	Adults	Public	Degree higher education	1999	—
	Adult education	China Distance Education Holdings Ltd.	Adults	Private	Training for professional certificates	2000	Yes
Comprehensive	Various types and levels of education	Koolearn	All groups	Private	Foreign language training	2000	Yes
		Xue.taobao.com	All groups	Private	Degree education, early childhood education, professional training, etc.	2013	Yes

However, if we look at the whole education market share (see Figure 1), ODL market is still underdeveloped. According to a research done by Yang (2013), in 2012, the market value of education and training in China totaled 960 billion yuan, and that of online education accounted for only 7.3%, numbering 70 billion yuan, with huge potential to develop. Among all types of ODL institutions, as shown by Figure 1, distance higher education institutions represent a dominating 47%, much higher than other categories.

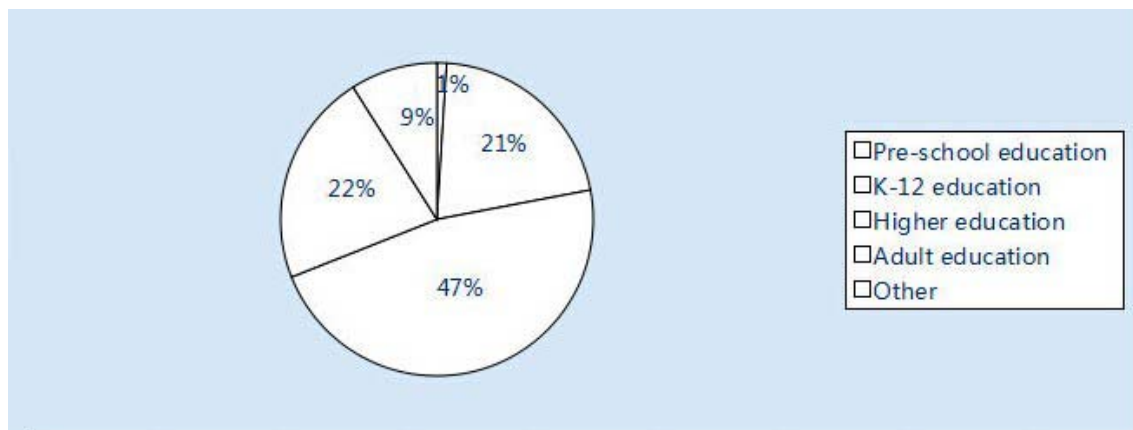


Figure 1 Market share of different ODL institutions in 2012

#### *The founding of OUC and its Strategic goal*

CRTVU, founded in 1979, has been the largest and most influential higher ODL institution in China. According to the investigation done by Strategic Office of CRTVU (2010), by 2009, the cumulative number of graduates from CRTVU has reached 7.2 million, representing 24% of the total number of higher education graduates in the same period. CRTVU has operated an education network covering almost all the provinces, cities and counties in China, and made great contributions to the development of China's higher education.

However, in 2012, the Chinese government decided to transform CRTVU into the OUC for the new mission. It is authorized to build the overpass of lifelong learning, meet the diversified and personalized learning demands of the public and contribute to the construction of open and flexible lifelong education system.

In the previous year of establishment, the OUC formulated the first ten-year plan, which sets forth its vision, goals and measures. It hopes to become a new kind of university in China's higher education system, a world-class Open University featuring Chinese characteristics and an important pillar for constructing a learning society through its relentless efforts. The effective strategies and policies are needed to achieve the above goals, which form the research question of this paper.

## Analysis Framework

### *SWOT Analysis*

SWOT analysis is a structured planning method used to evaluate the strengths, weaknesses, opportunities, and threats involved in a project or in a business venture. It is created by Albert Humphrey, and Figure 2 shows what it looks like.

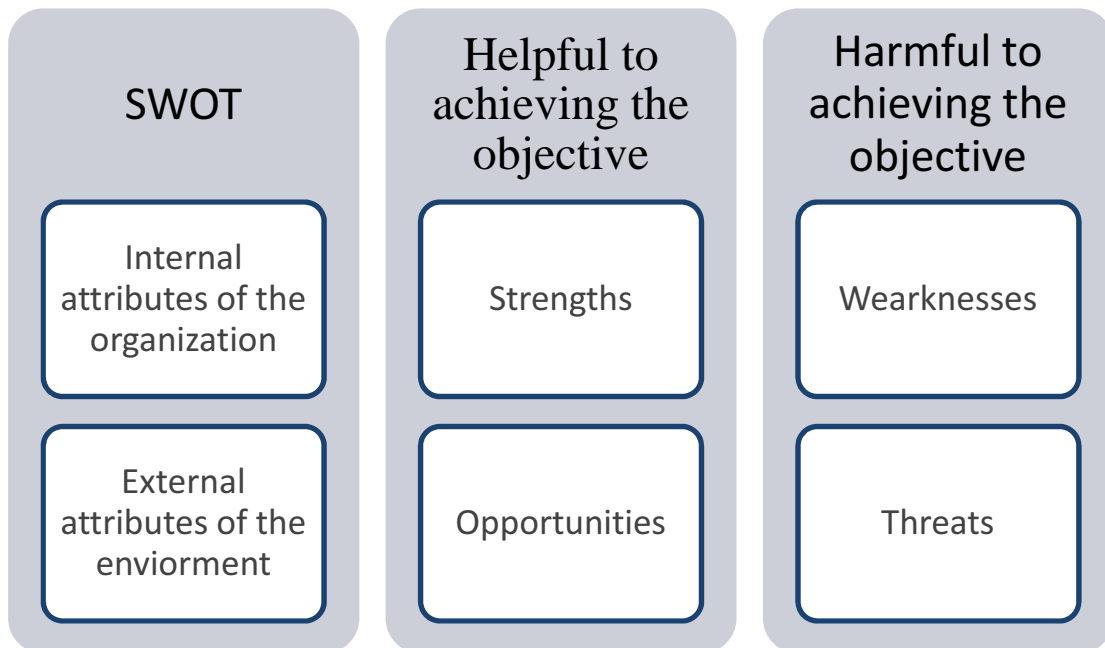


Figure 2 SWOT Matrix

### *PEST Analysis : The External Evaluation of Open University*

The opportunity and threat analysis is carried out by examining external attributes in the market. This is usually broken down into environmental attributes and competitors. Different models or tools are applied in analyzing the external environment of different institutions, and common examples are PEST and Michael Porter's Five Forces Model. This paper uses the former and at the same time incorporates the factor of competitors given the market competition. Figure 3 demonstrates the external attributes of the environment influencing the development of Open University.

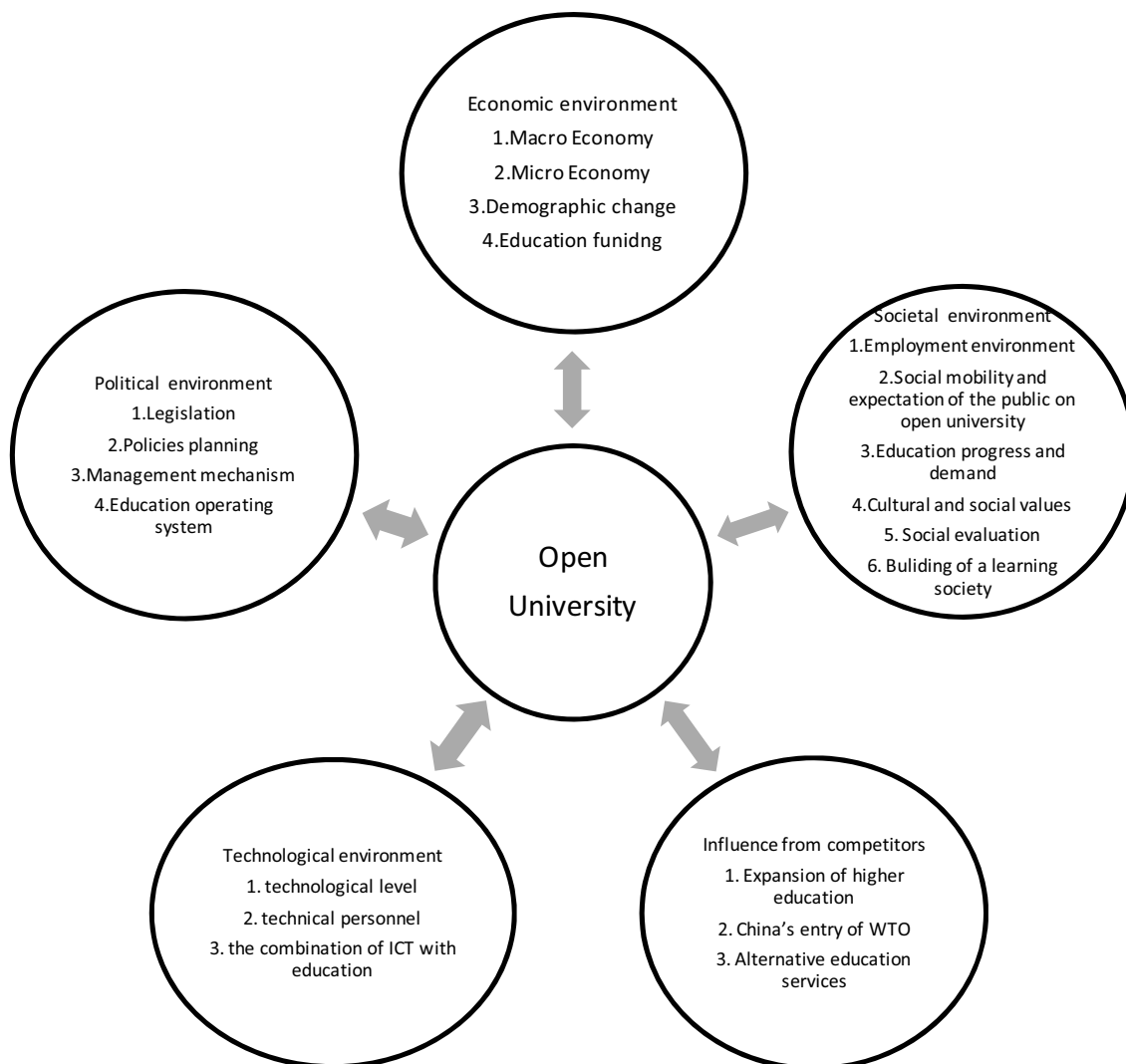


Figure 3 External attributes of environment influencing the development of Open University

*Core Competitiveness Analysis: The Internal Evaluation of Open University*

The strengths and weaknesses analysis is an internal examination that focuses on the organizations' past performance, present strategy, resources and capabilities. It is based on an analysis of facts and assumptions about the organization. Different models or tools are applied in analyzing different organizations. For example, PRIMO-F (People , Resources , Ideas/ Innovation , Marketing , Operations , Finance) is usually used in the analysis of enterprises. For analyzing universities, this paper adopts the Core Competitiveness model. Core competitiveness consists of hard power and soft power. The internal attributes of the Open University's core competitiveness are shown in Figure 4.



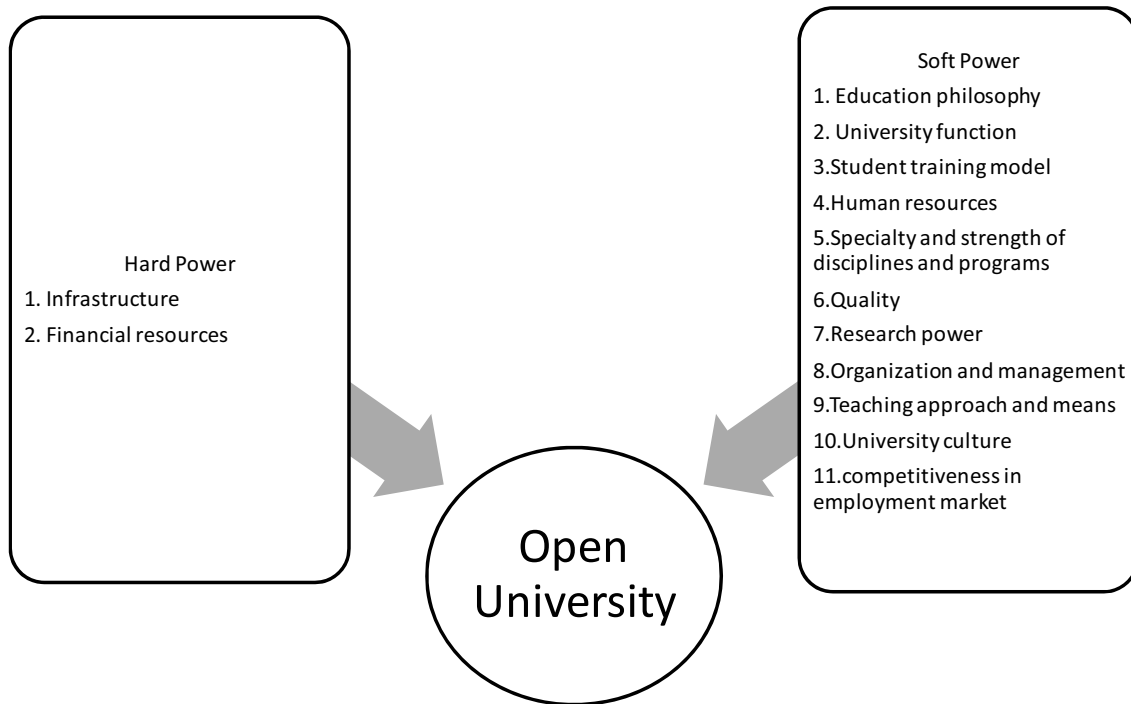


Figure 4 Internal attributes of Open University's core competitiveness

*The Overall Analysis Framework*

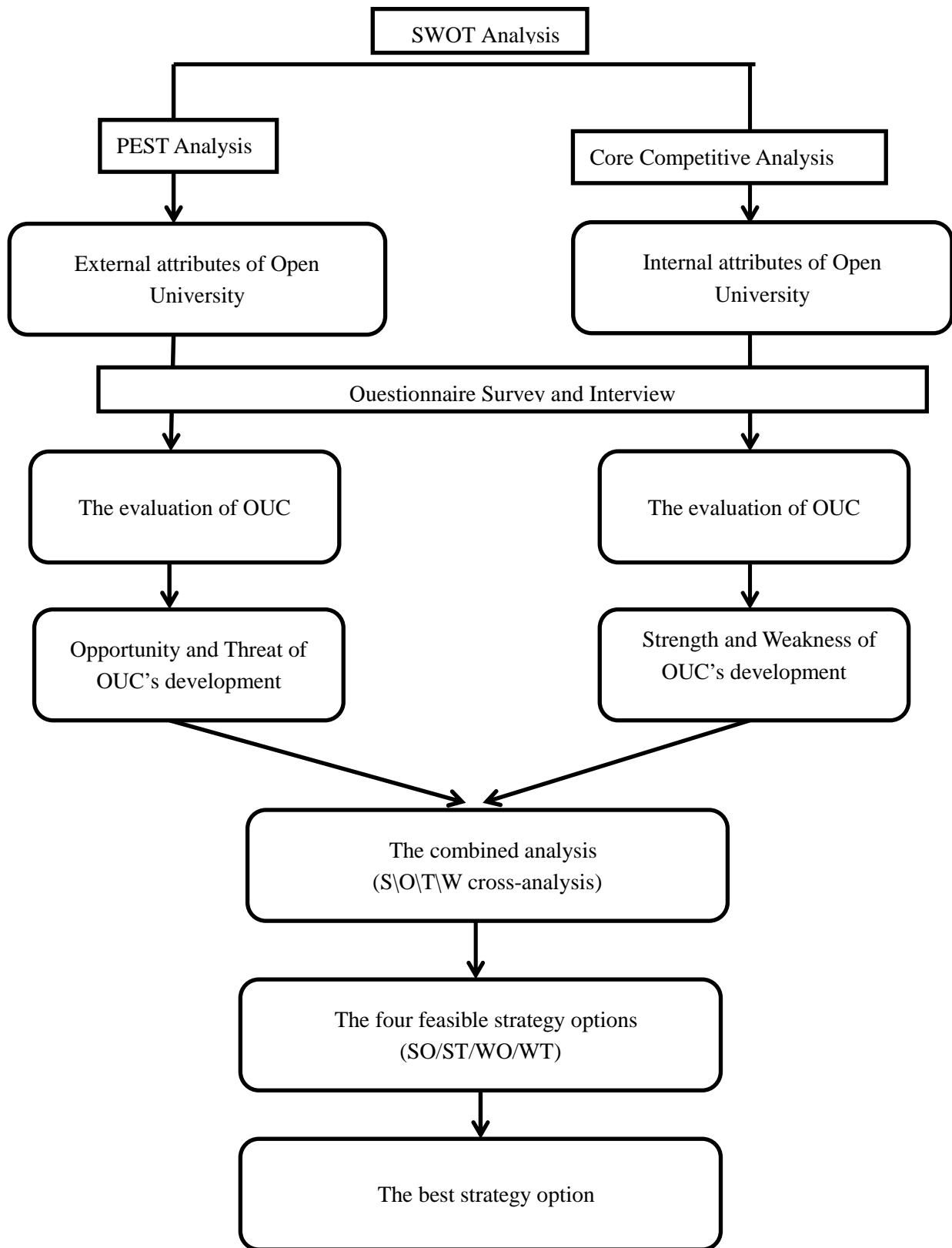


Figure5 the overall analysis framework of the study

## Research Findings

### *External Attributes of the Strategic Development of OUC*

After PEST analysis, we get the general external attributes of the development of Open University (as shown in Figure 3). Then, we invite the experts<sup>①</sup> to do the evaluations. Every attribute is scored from 1(lowest) to 5(highest) according to its importance for achieving the strategic goals of OUC, and a number of attributes which scored higher is selected as important attributes, then through the interviews with experts, the opportunities and threats of OUC's development are identified.

Table 2 shows that , among all the external attributes , political, economic and technological environment are the most important categories. And in terms of specific attributes, policy planning,legislasion, education funding, demographic changes, cultural and social values scored highest, which can be regarded as the core attributes, and other attributes like education progress and demand, the buliding of a learning society, the combination of ICT with education and alternative education services scored high which can also be seen as influencing attributes.

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<sup>①</sup>There are 10 experts involved in our questionnaire survey and interview. They are from different institutions such as Open University, National Research Institute, Research Universities. The management staff (2) and general staff(2) of OUC headquarter, the management staff (2)and general staff (1)of OUC –Zhejiang Branch , the management staff (1)from Continuing Education College of Zhejiang University, and the research staff from National Institute of Education Sciences (1)and Beijing Educations Scientific Research Network(1).

Table 2 the evaluation of external attributes of OUC's strategic development by experts

Attributes category	Average score	attributes	Average score
political environment	4.15	legislation	4.25
		policy planning	4.05
		management mechanism	3
		education operating system	2.8
economic environment	4.1	Macro economy	3.1
		Micro economy	3.25
		demographic changes	4
		education funding	4.3
Societal environment	3.1	employment environment	1.8
		social mobility and expectation of the public on open university	1.5
		education progress and demand	3.8
		cultural and social values	4.2
		social evaluation	2.8
		the buliding of a learning society	3.95
Technological environment	3	technological level	3.15
		technical personnel	2.95
		the combination of ICT with education	3.95
Influence from competitors	2.75	expansion of higher education	2.7
		China's entry of WTO	2
		alternative education services	3.35

### *The Opportunities and Threats of OUC's strategic development*

#### Opportunities

- The recognition from government for OUC's development

The Government attaches great importance to the development of Open University. As Vice Prime Minister Liu (2010) remarked at OUC's founding ceremony that the founding of Open University is an important initiative to improve the quality of the whole nation and the construction of human resources power and a creative country. Therefore, the government provides solid support on policy and practice. "To run the Open University well" was included into the Medium and Long Term Education Plan. To explore the construction of the Open University model was promoted as a key task in the reform of education system by the State Council (2010). OUC and some other Open Universities like Yunnan Open University, Jiangsu Open University, Guangdong Open University were approved to be established by the Ministry of Education (2012b,c,d). All of these give a sign to us that Open University is now at its unprecedented development stage.

- Government's determination to build a learning society

With the rapid development of ICT and the rise of knowledge economy, to build lifelong education system and a learning society has become a common trend and inevitable choice of human society. The Chinese government has begun to promote lifelong learning and a learning society since the beginning of the 21<sup>st</sup> century. It was considered as one of the key tasks in the Report of the 16<sup>th</sup>, 17<sup>th</sup> and 18<sup>th</sup> CPC National Congress. Under this clear policy guidance, varieties of lifelong learning practices such as the building of learning city, learning community, learning enterprises, learning family, and the launch of the "Lifelong Learning for All" Week have been spread all over the Mainland. This provides OUC with an enabling environment.

- Huge social demand for continuing education due to the economic and demographic change

The Chinese society has experienced a lot of changes since the emergence of the reform and opening up policy in 1979. According to Li (2014)'s research, since 2004, China has tended to be an ageing society and the ageing population will increase rapidly for the next 20 years. And with the improvement of the security, medical insurance and pension services for the elders, their leisure education demand will be growing and it cannot be provided by the conventional universities. At the same time, the urbanization is now accelerating which raises the question of the urbanization of farmers. The National Bureau of Statistics (2012) shows that the urbanization rate is 52.57% and there are about 160 million rural labor force engaged in non-agricultural employment in 2012. This requires a big provision of vocational training to farmers for helping them have a good living during this urbanization process. As a university with good experience in caring about and serving the education to farmers and elders, OUC is able to achieve great success in their continuing education.

- Rapid development of internet and information technology

When we look back at ICT development history in China, it is clear to see that there has been a boom of internet for the last decade. China Internet Network Information Center (2001,2014) revealed that from 2000 to 2013, the Internet penetration rate of China surged from 1.7% to 45.8% , and the number of Internet users increased from 22.5 million to 0.68 billion, almost half of the whole Chinese population, which means the biggest group of netizens around the world. This caught Government's attention and President Xi (2013) remarked that China should turn from a big Internet country towards an Internet powerhouse. It is obvious that online work, online learning, online life have become and will be an indispensable part of life for the Chinese people. These provide a good basis for OUC to facilitate online education and learning.

#### Threats

- Emerging competitors such as the MOOCs providers of conventional universities and internet companies

As it is mentioned that OLD institutions are now experiencing an unprecedented prosperous period while the market is increasingly competitive. The most powerful private ODL institutions shown in Table 1 have existed for no more than 15 years, many of which have successful Internet use experience, abundant capital, good industrial chain and powerful technology research background. Following the wave of MOOCs, in recent years, the conventional universities in China have strived to develop ODL. For example, in 2013, Tsinghua University, Peking University joined the Edx, while Fudan University and Jiaotong University joined Coursera. Also, the top nine Chinese universities (C9) formed an alliance for Chinese MOOCs. Moreover, the Chinese government cancelled the previously required national approval of launching higher distance education programs, which attracted more competitors in this field. The dominance of OUC in the field of ODL is challenged.

- Disorder of distance education market

The ODL market in China is competitive and disordered. There are a variety of reasons. For example, there is no legislation about Internet education, lifelong education or continuing education at national level. Also, the supervision of the market is not enough or effective by the education administration sectors. The criteria for entrance and exit of the market are not established, and quality standards of ODL education are not settled. All of these have led to vicious competition. According to a survey conducted by OUC (2014), there were more than 70 distance higher education institutions recruiting students in a county of Liaoning province, and some institutions promised a fast pass for the degree in order to beat the competition.

- Conservative culture

The conservative culture of Chinese society is strong and influential. For thousands of years, there is a closed, conservative and introverted part inside the Chinese people. Sometimes, they are unwilling to take reforms or accept new things and lack innovation and entrepreneurship, which will cause troubles in going ahead.

- The supreme value of elite education

The recognition for meritocracy is part of Confucian tradition. The imperial examination system, as a talent selection mode, ruled in China for quite a long time and led directly to a supreme value of elite education. Although Research University and Open University are both higher education institutions, the funding support from the government for the two types of universities varies widely. And the Public think highly of the very best student, but look down upon the ordinary student who may go to vocational education.

### *Internal Attributes of the Strategic Development of OUC*

After core competitiveness analysis, we get the general internal attributes of the development of Open University (as shown in Figure 4). Then, we invite the experts to

do the evaluations. Every attributes will be scored from 1(lowest) to 5(highest) according to its importance for achieving the strategic goals of OUC, and a number of attributes which scored higher will be selected as important attributes, then through the interviews with experts, the Strengths and Weaknesses of OUC’s development are identified.

Table 3 shows that, among all the internal attributes , soft power is the most important category. And in terms of specific attributes, education philosophy, quality and university culture, organization and management scored highest, which can be regarded as the core attributes, and other attributes like financial resources, university function and teaching approach and means scored high which can also be seen as influencing attributes.

Table 3 the evaluation of internal attributes of OUC’s strategic development by experts

Attributes category	Average score	attributes	Average score
Hard power	4.1	Infrastructure	3.7
		financial resources	4.1
Soft power	4..45	education philosophy	4.2
		university function	3.8
		student training model	3.35
		human resources	3.5
		specialty and strength of disciplines and programs	3.6
		quality	4.35
		research power	3.6
		organization and management	4.15
		teaching approach and means	4
		university culture	4.25
		competitiveness in employment market	3.25

*The Strengths and Weaknesses of OUC’s strategic development*

Strengths

- Open philosophy

OUC was born to be open to the public. It believes in no student left behind and strives to meet the needs of China’s developing society and economy, and to satisfy the personal development needs of the people, particularly the educational needs of rural areas, remote areas and ethnic minority regions. The openness is embodied in its mission, running model, student recruitment, student training model, and organization of education resources.

- Unique function

OUC is unique for its functions. It is a university which serves for the ordinary people rather than the elites. Most of the students are from the grassroots level and on-the-job. OUC provides them with all kinds of education to meet their needs of vocational continuing education and lifelong learning. Besides that, OUC is, in some ways, a non-profit public sector. It sets up free online learning platform with various free learning resources such as online courses, network lectures for improving the scientific literacy level and native education quality of the citizens.

- Nationwide network

OUC has a very different network from other universities. It is nationwide and within the society. Firstly, it has a vertical section based on different administrative divisions inheriting from CRTVU system which is called headquarter (national level)—branch (provincial level)—college (city level)—study center (county level) system. Secondly, it develops a new parallel section with social partners such as enterprises, industries, cities, and universities. Therefore, a lot of joint colleges are established and the network is getting more and more powerful. According to the annual report of OUC (2013), by the end of 2013, had set up one headquarter, 44 branches, 27 colleges and 69 study centers, as well as 12 joint colleges with social partners.

- Advanced use of technology

As a higher ODL institution, the application of technology in education is undoubtedly one comparative advantage of OUC. The OUC is now taking a 'cloud-road-terminal' model for utilizing the new information technology. It works with IT enterprises to set up a cloud platform for teaching and management, and works with the network operation enterprises to build different roads for delivering the services, then works with communication terminal product enterprises to produce OUC learning terminals for receiving the services. All of these support millions of simultaneous visitors and billions of personal accounts for online learning, forming a nationwide digital learning environment that satisfies learners' autonomous learning needs.

- Increasing international influence

OUC puts Internationalization as one of its core values. It participates actively in international ODL scene and gets increasingly important. It became a member of ICDE in 1996, then held the position of Presidency of AAOU in 2004, then became a member of the Executive Board of ICDE in 2010. Besides that, OUC is now having the first and only on-line Confucius Institute in China and cooperating with the BBC in maintaining the "in2English" website.

#### Weaknesses

- Unestablished modern university system

As a new kind of university, OUC needs to make great effect in establishing modern university system. Due to the historical reasons of CRTVU, OUC now has dual



identities. It is not only a directly affiliated education administration sector of Ministry of Education, but also a public university. This dual identity has always made difficulties in OUC's development and needs to be solved.

- **Incomplete quality assurance**

OUC is still using the quality assurance system of CRTVU which does not conform to the actual needs of its future development. Although OUC is currently researching on teaching quality assurance system of the Open University and trying to build the new and acceptable quality standards by the ODL market, it is still in progress and full of uncertainty.

- **Ineffective management**

The management of OUC is ineffective. Firstly, the responsibilities are to some extent in chaos between OUC headquarter and the local governments. The local government and education administration sectors are responsible for funding and supervision of OUC branches, colleges and study centers, while the OUC headquarter is responsible for the teaching quality of the whole system. Secondly, it still lacks a good co-governance mechanism to help running the university within the society. The balance of different stakeholders' interests is particularly important but difficult.

- **Low social prestige**

For a long time, because of disorder of the ODL market and incomplete quality assurance system, the social reputation of CRTVU is down. For example, the cheating in examinations of Beijing RTVU in 2010, and the leaking of exam papers of Deyong RTVU in 2005. These all made RTVU a bad social impression. Under this context, although OUC is a different from CRTVU, the society still doubt about quality of it.

- **Shortage of funding sources**

Regarding of financing, up to now, OUC mainly relies on tuition income and supplements by grant. Compared with conventional universities, OUC doesn't have national student tuition allocation. And compared with the other Open Universities in the world, the government funding for OUC is quite lower, which is only 30 million yuan per year. Therefore, the infrastructure and teaching conditions of OUC branches, colleges and counties are unsatisfied and no extra money could be spend on improving the quality and research.

### *The Four Feasible Strategy Options*

By crossing the strengths, weaknesses, opportunities and threats of the future development of OUC, we can get four feasible strategies with different priorities, namely ST strategy, SO strategy, WO strategy and WT strategy, as shown in table 4.

Table 4 Four Strategy Options of OUC's Future Development Based on SWOT analysis

Internal Evaluation External Evaluation	Strengths	Weaknesses
Opportunities	SO Strategy	WO Strategy
<ol style="list-style-type: none"> <li>1. Open philosophy</li> <li>2. Unique function</li> <li>3. Nationwide network</li> <li>4. Advanced use of technology</li> <li>5. Increasing international influence</li> </ol>	<ol style="list-style-type: none"> <li>1. Unestablished modern university system</li> <li>2. Incomplete quality assurance</li> <li>3. ineffective management</li> <li>4. low social prestige</li> <li>5. shortage of funding sources</li> </ol>	
<ol style="list-style-type: none"> <li>1. The recognition from government to OUC's development</li> <li>2. Government's determination to build a learning society</li> <li>3. huge social demand for continuing education due to the economic and demographic change</li> <li>4. rapid development of internet and information technology</li> </ol>	<p>S5-O1 option: to gain more policy and financial support from the government and strengthen international cooperation and exchanges</p> <p>S1S2S3O2O3 Option: to develop formal and non-formal education by building overpass of these two kinds of education as well as to get social forces involved for running university within the society in order to meet people's diverse needs of continuing education and facilitate lifelong learning</p> <p>S4O4 option: to promote in-depth integration of modern technology in education for capacity building and public service.</p>	<p>W4O1O2 option: to strengthen the publicity of government's recognition of OUC's importance in building a learning society and lifelong learning development for the purpose of increasing social understanding and improve social prestige.</p> <p>W5O1O2O3 option: to attract individuals, industries to invest in continuing education and form a co-finance system shared by country, Open University, individuals and their employers.</p> <p>W1W2W3O1O2 option: to develop the modern university system and improve the management and quality by participating in the pilot programs of current national higher education reform.</p>

Threats	ST Strategy	WT Strategy
1. Emerging competitors such as the moocs providers of conventional university and internet companies	S1S2S3T1 option: to rebrand as an open, free and national-wide platform for the public lifelong learning by differentiating from the competitors.	W1W2W4 T1T2: to set up the quality assurance system and modern university system for promoting standardization and domination of the ODLs market and improving social prestige.
2. Disorder of distance education market	S1S2S2T3 option: to create an inclusive and friendly education atmosphere by adhering to the ‘no student left behind’ education philosophy and open to public culture for reducing the threat of conservative cultural tradition.	WIW2W3T4: to improving the capacity building from the perspectives of operation, management, institutional construction for promoting a good quality value of ODL.
3. Conservative culture		
4. Supreme value of elite education	S5T2T3T4 option: to expand cooperation with foreign Open Universities and to introduce the advanced experience for improving quality and strengthening the domestic market competitiveness as well as reducing the supreme value of elite education.	W5T2T3 option: to get more stakeholders involved in running the university so as to diversify the sources of finance and develop a win-win collaboration mechanism with the market participants.

### *The Optimal Strategy Option*

As shown above, there are four feasible strategy options. According to the circumstance, OUC is now going through a remarkable development opportunity from outside and a transformation period from inside, which gives a sign for maximizing the value of chances and accelerating its own progress in expanding the strength and overcoming the weakness. Therefore, a combination of SO and WO strategies should be the best option given the current situation of OUC. Specific recommendations are as follows.

- to accelerate capacity building while gaining more support from the government and society

OUC was born to promote the development of sound lifelong learning system and a learning-oriented society (OUC, 2012 , p.11). And it is consistent with the current nationwide movement of building a learning society. With this opportunity, OUC should accelerate capacity building, especially put social service as its core function, and try to cultivate its approach for making learning society a reality, in order to promote

understanding and reputation from the government and society.

- to expand the openness and social involvement of the education network

One of the reasons for OUC to be a brand-new member in the Chinese higher education system is its open philosophy and its mission of promoting lifelong learning for all. To continue to expand this "newness", OUC needs to deepen its philosophy and mission. For example, to expand university network in scope and extent, to increase the variety of the age groups and professions of the students, and to diversify the education model in approach and content.

- to promote degree and non-degree education by building a good credit transfer mechanism

In order to be one pillar of the learning society, OUC needs to diversify its education provisions, for example, to produce the market-oriented quality formal education programs and to develop vast number of non-formal education programs. At the same time, OUC should introduce a well-designed credit transfer mechanism to link up these two different types of education and thus build the overpass of student's continuing learning.

- to facilitate in-depth integration of technology and education

As the largest ODL institutions in China, OUC does not have much experience in advanced use of technology in education. Given the severer competition ahead, OUC should facilitate in-depth integration of ICT with its open and distance education.

- to raise the quality and improve the management for connotative development

As a huge university, OUC's future development needs not only scale effect but mass effect as well. As one strategy to raise the quality, OUC should strengthen the connotative development, participating actively in external review projects like National Pilot Reform of Building Lifelong Education Framework and Mechanisms (2010-2020) and Higher Education Quality Improvement Project (2010-2020), to raise the quality and improve management effectiveness.

- facilitate international cooperation and exchanges

To become a world first-class open university with Chinese characteristic, OUC need to further enhance openness and expand international cooperation and exchanges, such as actively learning from the experience of other countries while promoting the Chinese experience, to forge a louder voice on global ODL issues and enhance the international reputation.

## **Conclusion**

This paper explores the strategies for the future development of OUC. It analyses the current internal and external environment of OUC's development and identifies the

strengths, weaknesses, opportunities and threats of the strategic development, finally arrives at four available strategies and the best option. However, it should be pointed out that what this paper provides is just the direction of the optimal strategy. With the environment changing, the content of the strategy should be enriched, the focus should be transformed, the implementation and evaluation should be adjusted from time to time, and this is another key to the success of the strategy, which needs to be further researched.

### **Acknowledgement**

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# **The knowledge creation process in developing academic products and the service system in Universitas Terbuka**

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The development of service system and academic products in Indonesian Open University (Universitas Terbuka/UT) should be done continuously so that Universitas Terbuka/UT can provide effective and efficient services. The development of academic product is aimed at providing good quality academic products and learning support for students. UT continually develop the knowledge to produce those products. The process of knowledge creation involves tacit and explicit knowledge. The aim of this research is to explore factors that influence knowledge creation in developing academic products and service system in UT. The research was conducted on 5 teams in the UT Head Office and Regional Offices. The research covered was in the area of developing learning materials using the tablet, research information systems, work procedures at regional office and systems of academic services and academic administration services via short message service (SMS). The data was obtained by conducting in-depth interviews of the various team leaders.. The data collected showed that there several factors contributed to the effectiveness of the development process. These are sufficient technical ability, experience, and knowledge of team members, high level of authority and non-hierarchical of the work team, leaders tolerate of faults and errors during the projects development, support from management, providing motivation in the form of praise and compensation., and availability of reliable IT infrastructure.. The factors that inhibit the development process are the time availability of team members, , low competence of team members, and the lack of human resources.

Key words : knowledge creation, tacit knowledge, explicit knowledge, developing product

## **Preliminary**

Organization that has high complexity requires high adaptability in order to survive in high complexity environments. Organization has to transform its system to get higher capacity of adaptation with its dynamic environment. Adaptability of an organization is indicated by its ability to continuously provide product and system services to the demand of the consumers or stakeholders. In a context of high complexity as stated above, Open University/The Indonesia Open University (UT) operates.

UT is a public university which was established by Presidential Decree Number 41 in the year of 1984. The mission of UT establishment is to provide educational services to the people who are already working, teachers, and high school graduates. According to the Decree, in carrying out its mission, UT is not equipped by complete infrastructure. UT was asked to seek resource sharing with existing institutions, particularly in the provision of learning and test materials, tutors, test centers, and experimental centers. Nowadays, UT has about 300,000 students spread all over Indonesia and abroad. Organizationally, UT consists of 39 regional centers that spread on across all of the provinces.

To carry out the mission effectively and efficiently, UT should be able to develop an academic and service systems that meet the needs of students and stakeholders on an ongoing basis. Therefore, the ability to develop products and services system is an important agenda for UT. UT is required to continuously produce academic and service systems are inexpensive, easy to use, and accessible to all of students wherever they live.

Based on observation, UT is very intense in developing academic products and service systems. Academic products that are developed such as printed and non-printed instructional materials, and learning materials for online tutorial. The system services developed based on online computer network and telephone. In developing services systems, UT also develop database system. Academic product development activities performed at the UT Head Office while service system development activities developed by the UT Head Office as well as UT's Regional Offices.

From this observations, the researcher obtained a picture that the development of products and systems in the UT Head Office is generally carried out by teams formed by Rector or Head of UT's regional offices. Team members ranged from 3-6 people with different expertise. The development of service systems also involves non-faculty members. Product development process and system services rely on information



systems. In this process, the main obstacle encountered is the problem of the availability of time which complicates coordination among team members.

This study was conducted using qualitative approach. Research conducted on 5 teams in the UT's Head Office and Regional Offices in the area of developing learning materials using the tablet, research information systems, work procedures and systems at the regional office of academic services, and academic administration services via short message service (SMS). This study was conducted to explore the steps of knowledge creation process and the factors that affect the process of knowledge creation in product development and academic services in the UT system.

Data were collected through in-depth interviews and observation. Interviews were conducted to the team chairpersons in April 2013 in the UT Center and UT Regional Office of Bogor, West Java, Indonesia. The interview was focused on team members involvement and management support, including process of knowledge creation experience, factors that support and hampered the development of knowledge creation.

Data processing was done by grouping how the process of tacit knowledge sharing, creating concept, justifying the concept, building archetypes, and cross-leveling knowledge made in the development of academic products and services in the UT system. Researcher then analysed factors that affect the knowledge creation process.

### **Theoretical Background**

The process of knowledge development began popular when Chris Argyris and Peter M Senge published his work on learning organization in 1983 and 1990. Definition LO of Senge (1990) is "... organizations where people continually expand their capacity to create the results they truly desire". LO .. Since that time, become an important ingredient in the study of management. In different terms, Nonaka and Takeuchi (1995), introduced the term organizational knowledge creation as the capability of the company as a whole to create new knowledge, disseminate it throughout the organization, and embody it in products, services, and systems. Nonaka and Takeuchi's explanation clarify Senge's opinion that development of individual capacity is done through the process creates, disseminates knowledge and put the knowledge into products, services, and systems. Schermerhorn and Garvin explain that LO consists of several main components, namely the creation, distribute, store, and use knowledge (Garvin, 2000, and Schermerhorn, et. al. 2011). Thus knowledge creation is part of a learning organization.

Furthermore, Nonaka and Takeuchi (1995) explain that knowledge consists of two dimensions, i.e. tacit and explicit. Knowledge creation is done by doing through four models of knowledge conversion: socialization, externalization, combination and internalization. Based on the conversion of the four models, Nonaka and Takeuchi's five phase introduce a model of the organizational knowledge creation process that is sharing tacit knowledge, creating concept, justifying concepts, building archetype, and cross-leveling knowledge.

Rhodes, et.al. (2008) found that the factors that affect the knowledge transfer is organizational information technology systems, structured learning strategy, an innovative organizational culture. Meanwhile Kasper, et. al. (2008) found that organizational knowledge sharing is influenced by the degree of decentralization of management, the intensity of cross-site knowledge sharing, the practice of knowledge within the company.

Chermin and Nijhof (2005) found that the most important factors in the creation of new knowledge are knowledge sharing and reflective learning on the job. Barton (1995) states that an organization's ability to innovate is influenced by the organization's ability to identify, acquire, and use information from outside. To carry out new knowledge creation process, the role of information technology (IT) is very important. "... for the organization to learn, they must engage in knowledge acquisition, information distribution, information interpretation, and organizational retention in adapting successfully to changing circumstances" (Schermerhorn, et.al. 2011). Another influential factor is human resource. Cummings and Worley (2005) stated that human resources. It reinforce the acquisition and sharing of new skills and knowledge. As part of the learning organization (LO), knowledge creation process influenced by organizational structure, information systems, human resource development, organizational culture, leadership, and organizational climate. (Cumming and Worley, 2005; Mullins, 2005; Marquardt, 2002; George, 1997; Schermerhorn, 2011; Robbins and Judge, 2011).

Based on the previous explanation, it can be concluded that to become adaptive, an organization needs to have the ability to create, distribute, store, and use knowledge. The process of knowledge creation is done through the stages of socialization, externalization, combination, and internalization. Knowledge creation process is influenced by the components of organizational structure, information systems, human resource development, organizational culture, leadership, and organizational climate. The process will run properly if management provides support in the form encouragement to employee to overcome the fear and shame associated with making

errors, norms that legitimize the making of errors, and norm rewarded innovative thinking and experimentation. (Garvin, 2005).

## **Findings**

Structure of the presentation is divided into two sections. First, description of the five-phase model of organizational knowledge creation process that is sharing tacit knowledge, creating concept, justifying concepts, building archetype, and cross-leveling knowledge at Universitas Terbuka. Second, the factors that support and hamper the process of knowledge creation at Universitas Terbuka.

## **Sharing Tacit Knowledge**

Tacit knowledge gained from experience and have settled in one's memory. Tacit knowledge generally in the form of experience that is not easy to explain through words. Sharing tacit knowledge is usually done through face to face meetings.

Interview results showed that each team member has experience, technical expertise, and diverse backgrounds to suit a project will be done. At the beginning of the project, team leader described the draft of a project, followed by face-to-face and regular dialogue. In this process, team members shared their knowledge and experience towards the project so that they can gain understanding from each other towards the details of the project as well as provide feedback and improvement. Discussion during project development can be done either face to face or via the internet. Feedback also come from students who give comments on teaching materials being developed.

## **Creating Concept**

Creating concept stage is the stage of bringing tacit knowledge to be explicit knowledge. Tacit knowledge sharing process generates a lot of information which is can be selected in terms of its relevancy to the project. The selection of information is based on (1) rational from team members; (2) user or stakeholders input; (3) previous experience; and (4) internet-based benchmarks of other products.

The project formulation is initiated by core team members which will be sanctioned later in the continuous dialogue. To confirm whether the concept has been properly developed, the team members open a discussion forum involving relevant communities through face to face or internet-based. Input are also invited from respective formal leader in the organization.

### **Justifying Concept**

Justification of the concept involving the agreement from all team members. Decision being made towards the project is based on product's effectiveness and efficiency, and also organization's vision. Justification can also be based on the quantitative standards, judgment on values and norms of the organization, as well as mutual agreement. This research shows that UT's adhoc teams has two models of justifying the concept. The first one is done through mutual agreement and second one through the intervention of leaders. Once a concept has been approved, decision should be made upon final projects.

Justifying concepts are carried through the agreement by team members. Generally, standard to approve a product or concept is based on technical considerations. For example, in the teaching material development team and research information systems team, input from user and other experts as well as the benchmark with other similar products are put into additional consideration. In the other hand, the products of service is generally reviewed by leaders, since this product will be integrated into the existing systems.

### **Building an Archetype**

Once the concept was agreed the next step is to build a model or prototype. This is a process of combining explicit knowledge in the form of concepts with existing explicit/real knowledge, such as technology or infrastructure into the projects. In this process, the teams should involve units or persons relevant to the projects.

The interview result showed that archetype building process is done by core team members who create initial design prototype. The prototype then will be reviewed and revised based on input form relevant clients. Completion of the prototype involves potential users of the product. Refinements also done by comparing the product obtained from the internet.

Findings from the phase of designing the prototype are as follows (1) Choosing the right gadget; (2) examine the readiness of infrastructure; (3) prepare design for try out procedures and user manuals; (4) test data entry (on the development of information systems research); (5) cooperate with users of the product. Justifying process through the products is redone to revised them ones they are perceived unsuitable or incomplete.

## **Cross Leveling Knowledge**

When the academic product and system services have been finished, they will be launched to the users. Cross leveling knowledge by launching the products will involve relevant units at UT, such as finance, human resource development, quality assurance, departments, and leaders as well as UT's external parties.

Cross leveling knowledge done through face-to-face and using media (internet/email, telephone since UT has wide range of work areas and regional offices. This process is done through several levels, such as, first level is top leaders, second level is middle managers, and third level is faculty members and other real users. Example of cross leveling knowledge done at UT is come from the team of Short Message Service Development. Users manual is provided and sent to the actual users in regional offices, to be tried out and reviewed. Another example is from Research Information System Team which provide user manual and sent it to every email address of actual users accross the country. Every team develop forum for their own project in order to gain feedback form users.

## **Factors that support the knowledge creation process in UT**

The success of knowledge creation at UT is highly related to several factors namely: (1) sufficient technical ability, experience, and knowledge of team members . Adequate capabilities of team members support in developing a prototype of the products since they have knowledge and experience related to the projects. This capabilities also facilitate knowledge sharing to encourage the creation of new knowledge. This finding is consistent with Chermin and Nijhof (2005); (2) high level of authority and non-hierarchical of the work team. Team work is given the authority to establish its own team, determine their own working methods and partner, set the working time. Leaders provide policy, budgets and set deadlines of the projects. This finding is consistent with Kasper, et. al. (2008). (3) Leaders tolerate of faults and errors during the projects development, so that the team becomes more creative in finding ways or new products. Tolerance in making errors is important as also found by Garvin (2005). According to Garvin tolerance for mistakes is part of the culture of the organization. (4) Support from management is needed, by providing facilities, funding, and internal human resources and external experts. This finding is highly corresponds with the findings of Barton (1995) that organizational innovation capability is also determined its ability to acquire knowledge from outside. (5) providing motivation in the form of praise and compensation, in accordance with the opinion of Cumming and Worley (2005) that the assessment and compensation need to be considered, and, (6) availability of reliable IT

infrastructure. IT serves as a backbone in the process of knowledge creation. This is in accordance with the opinion expressed by Schermerhorn (2011) and Cummings and Worley (2005).

While the factors that inhibit are (1) Problem of coordination among team members since they come from different units. They were assigned to carry out a particular project without leaving the main task. Team leader is often difficult to coordinate the project (2) less time allocated by team members to work in the project, thereby reducing quality of the product or require a longer time to complete. (3) low level of team member's vision which result in less contribution to the team.

## **Conclusion**

This study is aiming at describing the process of knowledge creation at UT by using the concept of the five-phase model of organizational knowledge creation process. The phase are sharing tacit knowledge, creating concept, justifying concepts, building archetype, and cross-leveling knowledge proposed by Nonaka and Takeuchi. Knowledge creation process start to "dismantle" heaps of experience of each team member to form the basis of academic and product development services system through the process of sharing tacit knowledge. Through this process, the team developed and agreed the concepts, and develop it into a prototype.

At the phase of prototype development, many factors should be considerate such as its economic and compatibility with the existing products and systems. The last stage is introduce the product and system to the stakeholders.

Factors that supports knowledge creation are (1) adequate technical ability, experience, and knowledge of team members (2) sufficient authority of the team. (3) tolerance in making faults and errors during development; (4) management support in providing facilities, funding, and human resources; (5) adequate praise and compensation and, (6) availability of reliable IT infrastructure. While the factors that inhibit knowledge creation process are (1) the difficulty in coordination. (2) less time allotted by team members; and (3) team members who lack the vision which lead to less contribution to a team.

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# Open education initiatives and KM readiness in an ODeL institution

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## Abstract

Open education initiatives of an open and distance elearning (ODeL) institution were examined vis-a-vis the KM maturity level of the organization. Results of an earlier research which established the KM maturity level of the institution were presented in terms of the seven audit categories. These included leadership, people, processes, technology, knowledge processes, learning and innovation, and outcomes.

Using the institution's three-year strategic plan, open education initiatives were identified. These included initiatives related to open and distance elearning (ODeL), open education resources (OERs) and massive open online courses (MOOCs). The process of establishing strategic goals related to the institution's open education initiatives were discussed in light of the characteristics of the KM maturity level of the institution.

The paper aimed to contribute to the discourse on the application of KM principles and practices in educational institutions and more specifically to open and distance elearning or ODeL institutions.

Keywords: knowledge management (KM), open and distance elearning (ODeL) institution, open education initiatives

## Introduction

Recent discourse on education has been increasingly characterized by dimensions of openness often discussed in terms of open education practices. However, little attention has been given to the academic institution even as it is widely recognized that institutional readiness is a prerequisite to being relevant in today's knowledge society.

Education today is subject to the same pressures of the marketplace. Hence, educational institutions, just like any other institution, need to perform just as well as any other organization (Brown and Duguid, 1996). In an era of open education, this becomes even more pronounced for open and distance learning institutions which are at the forefront of 21st century education.

Unarguably knowledge permeates organizational processes and its effective management is crucial to organizational growth, productivity and innovation. As Butcher (2007) points out effective knowledge management (KM) concepts and strategies "should resonate in an educational context" as well. One of the challenges in

a knowledge society is to develop the role of educators and learners as knowledge workers within the broader education system and within the academic institution.

At an institutional level, “KM is essential to creating organizations that ‘learn’ more effectively” hence, “KM should be a fundamental objective of any educational institution, as learning is its core function and should be reflected in how the organization operates” (Butcher, 2007).

This paper explored an approach to better understand an ODeL institution from a KM perspective. It employed a KM assessment tool to first determine the institution’s level of KM maturity and then document the process by which the organization developed its strategic plan focusing on open education initiatives.

### **The ODeL Institution**

The ODeL institution is defined as an academic organization engaged in open learning, distance education and elearning with values of the universitas and operating in a networked environment. This definition derives from an organizing framework (Figure 1) that puts these elements together.

As illustrated in Figure 1, the ODeL framework “draws from the features and affordances provided by open learning, distance education, and e-learning – access and equity, resource sharing, learner-centeredness, flexibility, active learning, interactivity, ubiquity, and connectivity... these affordances and features are infused with values that underpin the universitas – excellence, academic freedom, humanism, intellectual pluralism, and service to society ... together, all these elements are embedded and facilitated by networked and communication technologies... The interweaving of these components can bring about social transformation” (Alfonso, 2012).

As an institution specifically mandated to offer degree and nonformal programs via distance education, the UP Open University (UPOU) is seen to operate under an ODeL framework. UPOU offers courses fully online and has recently embarked on the offering of its own version of a massive open online course known as MODEL or the Massive Open Distance eLearning (Bandalaria, 2014). As a constituent university of the University of the Philippines System and as a leading open and distance education institution, it pioneers and continues to innovate in the field of open and distance elearning.

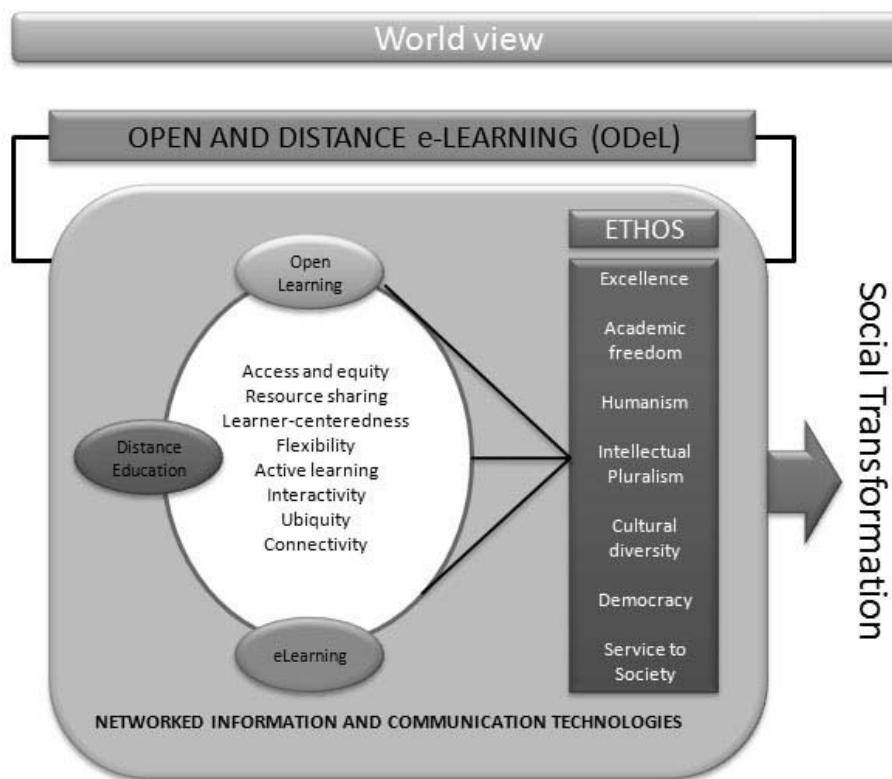


Figure 1. ODeL Worldview (Alfonso, 2012)

### KM Readiness

The UPOU's KM maturity level was determined in a previous research (Lumanta, Alip, & Lagaya, 2014) using a KM Readiness instrument, which is a modified version of the Asian Productivity Organization (APO) KM Assessment Tool or KMAT. KMAT was developed by the American Productivity and Quality Center (APQC), and has been used extensively in corporate organizations. It measures seven dimensions or audit categories which constitute the following: (1) leadership, (2) people, (3) process, (4) technology, (5) knowledge processes, (6) learning and innovation, and (7) outcomes. The tool is a 42-item likert-type scale which covers seven audit categories, wherein each category has a maximum score of 30 points, and a total maximum score of 210 points for the seven categories. Each of the questions in the categories can be rated from 1 (doing poorly or none at all) to 5 (doing very well).

Using responses of 58 UPOU employees who replied to an online format of the KM Readiness instrument, UPOU was scored at 149 out of a possible 210 points indicating that implementation of knowledge management principles and practices are continually being evaluated for continuous improvement (Figure 2).

The web or radar diagram in Figure 3 shows the actual scores obtained for each dimension versus the maximum score in that category. Results in the previous study revealed that the Technology dimension is the highest rated followed by the Learning and Innovation, and the Process dimensions. For an ODeL institution, this is not surprising. It is through appropriate web-based technologies that the institution is

expected to develop, deliver, create and sustain knowledge-based solutions and a knowledge-sharing environment. Also it can be argued that in an ODeL environment, the technology leads to greater opportunities for innovation.

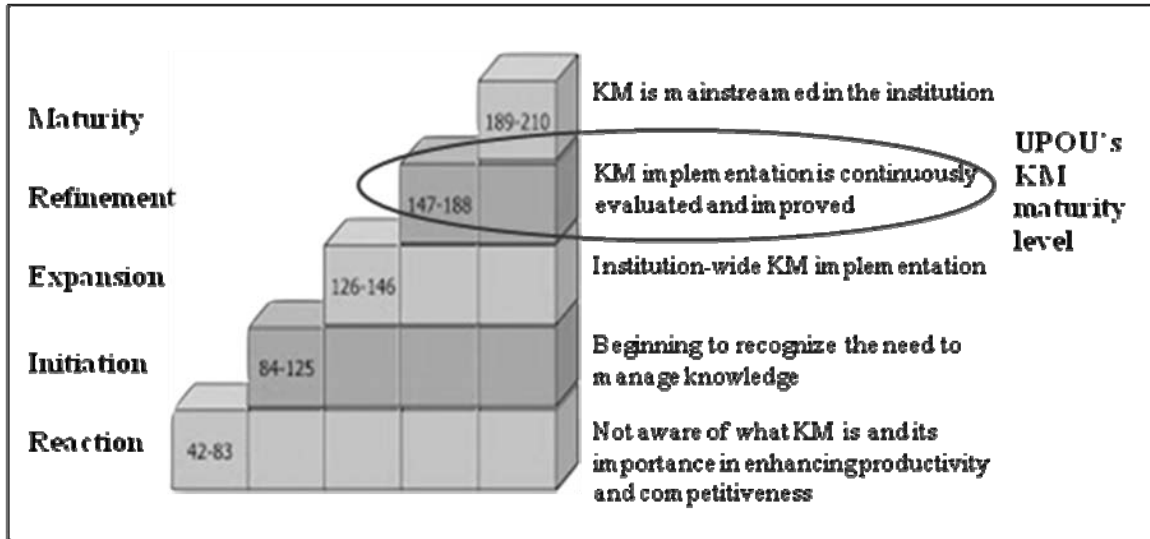


Figure 2. KM maturity level (APO, 2009)

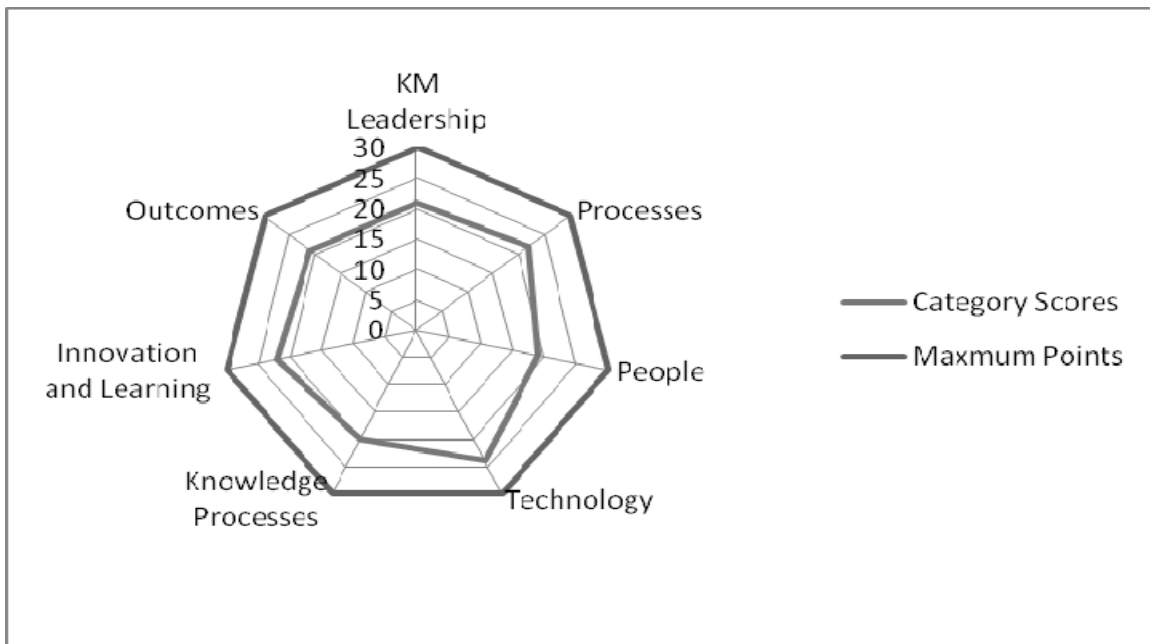


Figure 3. ODeL Institution's Overall Organization Radar Chart

### Open Education Initiatives

For this paper, UPOU's open education initiatives were identified as documented in the institution's three year strategic plan. This document reflects the collective vision,

commitment and agreed-upon goals and activities of organizational members. The institution's strategic planning activity involved a two-stage process. The institutional vision, mission and goal statements for the years 2013-2016 were articulated by the leadership and these were validated in a general assembly at which commitments were made by the various sectors of the organization.

To determine the suitability of this institutional document for documentary analysis, the study applied the quality control criteria of authenticity, credibility, representativeness and meaning. Scott (1990) as cited by Mogalakwe (2009) recommended and defined these four criteria as follows:

*Authenticity refers to whether the evidence is genuine and from impeccable sources; credibility refers to whether the evidence is typical of its kin; representativeness refers to whether the documents consulted are representative of the totality of the relevant documents; and meaning refers to whether the evidence is clear and comprehensible.*

The UPOU 2013-2016 Strategic Plan was examined for open education initiatives of the university and these were shown to be those related to ODeL, Open Educational Resources (OERs) and Massive Open Online Courses (MOOCs).

### **Open Education Initiatives and KM Level of Readiness**

Figure 4 presents descriptions of the characteristics of the KM dimensions at the KM maturity level as determined from a previous research. In light of these maturity level of KM dimensions, the UPOU's behavior or performance as it developed its strategic plan is discussed.

A documentary analysis of the 2013-2016 Strategic Plan of the UPOU revealed that open education initiatives are in the areas of ODeL, OER and MOOCs. This section presents how UPOU derived its goals from its vision of being at the forefront of the knowledge society as a leading institution of open learning and distance education.

In coming up with a unified vision of making ODeL a powerful means of promoting access and equity in higher education, UPOU conducted a Strategic Planning Workshop using the strategic directions from the leadership, articulation of the ODeL framework, and the overall thrusts of the UP System. From the strategic directions, goals were set in the areas of instruction, research, public service and administration. These goals were then presented in a General Assembly of UPOU officials, faculty, and staff, wherein everyone was given an opportunity to voice their commitments and identify enablers.

Strategic directions in the area of instruction were identified as follows: (1) enhance the learner experience by tapping web-based approaches in faculty development, establishing online-based student support systems and promoting the co-creation of knowledge in instruction; and (2) expand the public's access to UPOU course offerings through institutional promotions and partnerships and provision of lifelong learning opportunities. In research, the strategic directions were: (1) cultivate a culture of research as part of the teaching and learning praxis; and (2) provide an enabling environment for research to increase research productivity and impact. In the area of administration, the strategic directions included: (1) boost the administrative capacity of

the university to harness resources and technologies; and (2) provide a physical and social working environment conducive to the wellness and development of the human resources' full potential. As a state university it included strategic directions in the area of public service and these included: (1) strengthen the university's engagement with the communities of practice and facilitated discourses to empower disadvantaged groups; and (2) nurture a vibrant relationship between the university and the alumni.

	Description	Characteristic at Maturity Level
<b>KM Leadership</b>	leadership's capability to respond to the challenges of a knowledge-based economy and to adequately address organizational	the management performs regular reviews of organizational performance and uses the results to reinforce organizational direction, improve products or service delivery & create new products and services
<b>Process</b>	looks into how knowledge is used in managing implementing and improving the organization's key work processes	systematic processes are getting to be more effective & well deployed
<b>People</b>	organization's ability to create and sustain KM initiatives where people are the key factor	mechanisms for knowledge sharing and collaboration are regularly evaluated for continuous improvement
<b>Technology</b>	organization's ability to develop, deliver, create and sustain knowledge-based solutions & knowledge-sharing environment	IT infrastructure is continually reviewed in the context of its alignment to the KM strategy and improved accordingly
<b>Knowledge Processes</b>	organization's ability to manage the organization's intellectual capital	processes are regularly reviewed & benchmarked with other organizations for continuous improvement; processes have undergone at least one cycle of refinement
<b>Learning &amp; Innovation</b>	organization's ability to encourage, support and strengthen learning & innovation via systematic knowledge processes	management tools such as a fact-based systematic evaluation and improvement & organizational learning including innovation, are regularly utilized
<b>Outcomes</b>	organization's ability to enhance value to customers, increase productivity, improve and sustain growth	good to excellent organizational performance results and sustained trends over time related to leadership and very good performance against benchmarks

Figure 4. KM dimensions, descriptions, and UPOU's characteristic at maturity level

It can be gleaned from these general directions that open education initiatives are lodged primarily in the instruction and research functions of the university. Hence, the commitments declared by the stakeholders were mostly in continued research and development of OERs, MOOCs and ODeL. These reflect the learning and innovation inclination of the institution and its concern for being relevant in the changing times through benchmarking with similar organizations. In the area of administration, the commitments declared by the constituents were geared towards the continuous

improvement of IT infrastructure, connectivity, hardware and software as an appropriate response to the requirements of emerging pedagogies.

In this study, it appears that the affordances of technology and systematic processes that are continuously reviewed and improved affect the learning and innovation propensity of the institution. These interrelationships are shown in Figure 5.

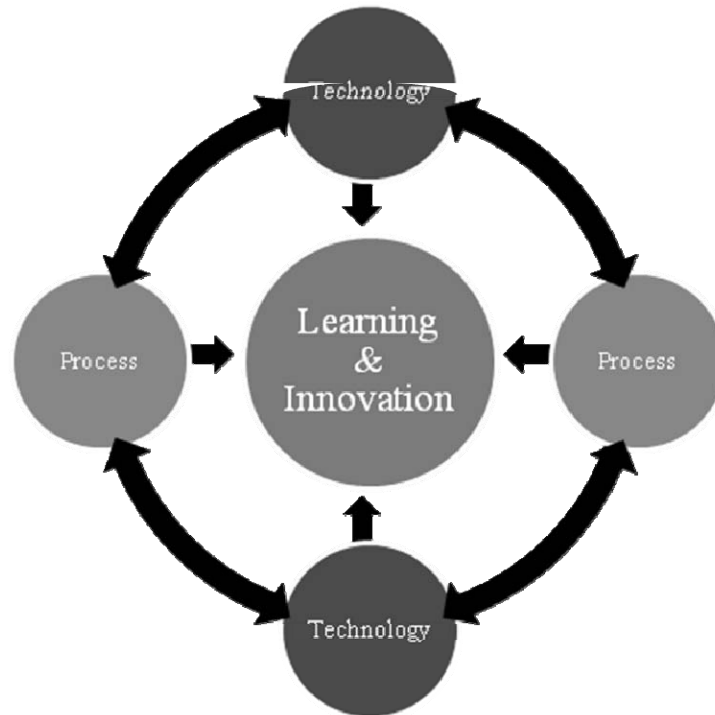


Figure 5. Interrelationships of Technology, Process, and Learning and Innovation

## Conclusions

The paper attempted to illustrate the use of a methodology that validates the expected characteristics of a given level of KM maturity of an ODeL institution. The contribution of the paper is seen to be in: (1) the application of a KM readiness instrument to an educational institution, more specifically to an ODeL institution; (2) the use of an institutional document, the strategic plan, that is reflective of a collective vision, goal and commitment in the pursuit of open education initiatives of an ODeL institution; and (3) a methodology that combines an online perception survey with that of document and process analysis to get a deeper understanding of the ODeL institution through a KM perspective.

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# A mobile course rescheduling system with WeChat in Jiangsu Open University

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**Abstract.** In current open institutions, the academic affairs work is carried out through educational administration system based on the interface of computer. This leads to that all the operations such as adjusting a class schedule should be totally operated on the PC based system. For example, in current procedure of applying a course rescheduling in Jiangsu Open University, there are the following operations that should be executed in PC: (1) Teacher presents application through educational administration system online; (2) Faculty secretary receives the information and reports to Academic Affairs Department; (3) Administrative people of Academic Affairs Department approves the application in online system and informs the secretary about the results; (4) Secretary informs the teacher about the results; (5) Teacher logins the system to check the approval outcome of application. In order to simplify such complicated and time-consuming operation process, this article aims to designing a system based on the open interfaces of the chat app in mobile phone. Compared to merely surfing through the phone's web, this system automatically receives messages from the users and communicates with computer terminal to finish the operations, so that users only need to complete the course rescheduling operation by chatting in the chat app of their mobile phones, and receive instant feedbacks from the computer terminal effectively. This system is designed based on WeChat Public Platform, which was launched by Tencent in August 2012, and enables specific group people receive instant messages including text, voice and pictures through mobile phone, and make individual interaction with computer terminal. The most important characteristic of this Platform which helps to realize the "mobile educational administration system" is that it can support instant communication between mobile phones and the computer terminal, which provides a supplement for the shortcomings of prevailing educational administration system, such as the way of login limitation that teachers only can complete the application through a computer online, as well as feedback delay caused by human factors. With the "mobile educational administration system", teachers are allowed to send specific text content to the platform, like "adjust class schedule", and then receive instant reply of systematic operation instructions for carrying on the application. Once the application command is input into the platform, a message as a reminder will be sent to administrative people who takes charge of application approval process, then the administrative people will deal with the approval through the mobile educational administration system by the communication interface between the WeChat app and the computer terminal. Consequently, the approval result in a term of WeChat message will be directly sent to

teachers' phones. Technology based on cross platform (from computer terminal to mobile phone) will be introduced to realize this design. This design does not only arise the effectiveness of academic affairs procedure, but make a reality of applying and tracking the applications without time or location limitations. Further research will focus on how to use mobile system as a supplement to help teachers and administrative people improve work efficiency.

**Key Words:** WeChat Public Accounts Platform; Course Rescheduling Application; Mobile Educational Administration System

## 1. Introduction

The Office of Academic Affairs in educational institutions is responsible for a wide range of matters concerning institutional effectiveness, such as strategic planning, administration and evaluation of academic programs, resource allocation and academic policies. With the rapid development of information technology, most educational institutions construct their own Educational Administration System based on the SOA, *Service Oriented Architecture* (Yi Wei, M. Brian Blake. 2010). As for distance education institutions that rely on critical and core online resources (Tabata & Johnsrud, 2008), it seems more vital to adopt a highly interactive, adaptive and intelligent educational administration system. Learning support is an important component of distance education (Ibrahim & Silong 1997). Wu (2005) claimed that distance education should provide learners with instant and considerate learning support service. Therefore, the activity of Academic Affairs, as a vital assistant aid for teaching activity, should provide teachers and administrative staff with instant and considerate educational management support service. However, the prevailing educational administration system is based on the traditional PC based B/S architecture, which requires that users should access their information system from their personal computers (PC) with the web browsers. Furthermore, some educational administration systems can only be accessed by the users from the intranet due to the concerning of network security. Obviously, the above mode of management obstructs the principle of “instant and considerate educational management support service” in distance education institutions. This article aims at designing a mobile educational administration system with WeChat Public Accounts Platform<sup>1</sup> to improve the prevailing educational management system in most educational institutions. The proposed system combines the advantages of both mobile devices and PC terminal, so as to support teachers and administrative staff with instant and considerate service for educational management.

## 2. Mode of Jiangsu Open University Educational Administration System

Jiangsu Open University has adopted Zhengfang Educational Administration System since the year of 2008. It is a multi-functional system combining teaching and academic affairs management, which is mainly used to achieve administrative management and

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<sup>1</sup> <https://mp.weixin.qq.com/>

the related academic affairs. Its functions include the public information maintenance, student and teacher profile management, teaching plan management, intelligent course scheduling, examination management, course management, teaching quality evaluation, student status management, classroom and laboratory management and related information query. Combined with C/S technology and web technology, this system allows users to access through internet or campus network. Zhengfang Educational Administration System prevails in most universities in China, while the web-based trait leads to following drawbacks in operating this system:

- 1) It is necessary for teacher users and administrative users to log in this system with a computer connected to the internet. Although users can log in the system with their mobile phones, the user interfaces of this administration system are not designed for those mobile phones system, thus it will bring many troubles to the users when using their mobile phones to access the administration system. Furthermore, in some conditions, those administration systems can only be accessed within the intranet, which will limited the users can access the system in everywhere.
- 2) PC client of this system has no function of reminding of the updated data when teachers carry out any applications, so that administrative people who are responsible for application approval must take initiative to check the application status time by time, or have other people to inform the applications to be approved.

The aforementioned drawbacks of Zhengfang Educational Administration System cause numerous inconveniences for academic affairs management, and even decrease the work efficiency in universities. This article will exemplify a common activity in academic affairs management-course rescheduling application-to show the disadvantages of Zhangfang Educational Administration System.

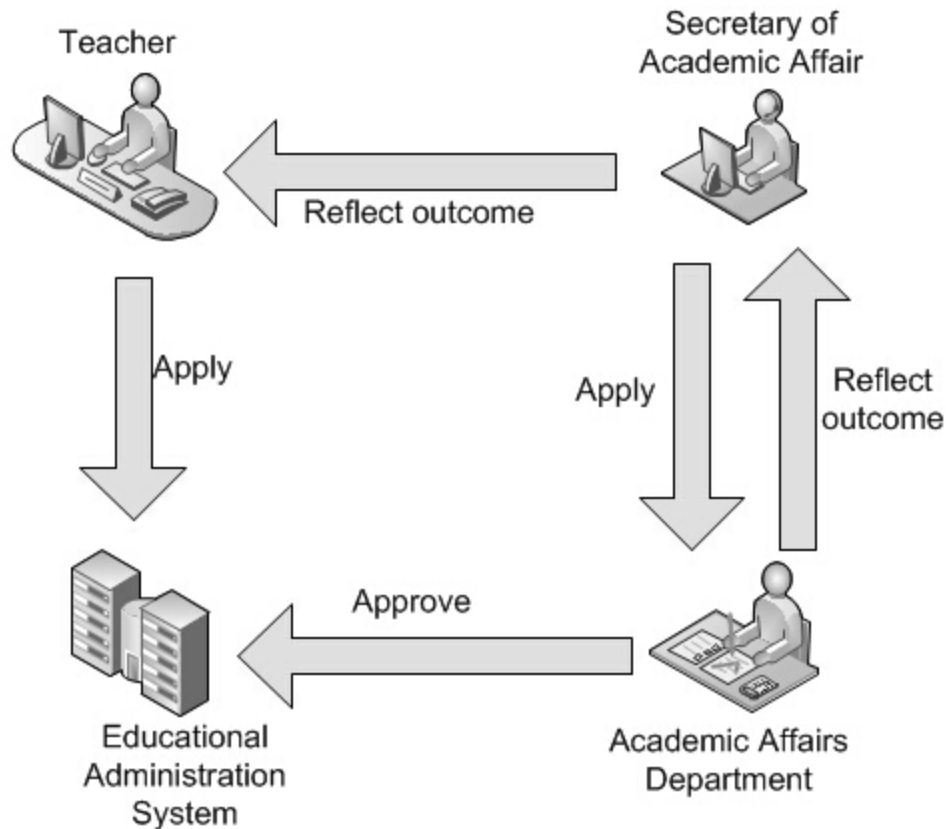


Figure 1. Course Rescheduling Application Process in JSOU

As is shown in Figure 1, the process of course rescheduling application is as follows: (1) Teacher presents application through educational administration system online; (2) Faculty secretary receives the information and reports to Academic Affairs Department; (3) Administrative people of Academic Affairs Department approves the application in online system and informs the secretary about the results; (4) Secretary informs the teacher about the results; (5) Teacher logs the system to check the approval outcome of application.

### 3. The Design Principles of Mobile Educational Administration System

#### 3.1 System requirement analysis

The core principal of designing this assumed system is to improve administrative efficiency of educational management. Tang & Xu (2009) point out that the priority means of improving administrative efficiency is to reduce administrative staff and reform the approval procedure. The related design of this Jiangsu Open University Mobile Educational Administration System (JOU MEAS) is to utilize mobile client to substitute the role of faculty secretary of Academic Affairs who informs teachers' application to administrative people that approves the application. The aim of this design is to avoid the work delay in the course rescheduling application process caused by human factors. The assumed system will be designed as: 1) The mobile client

automatically responses to teachers' editing instructions; 2) PC transmits the message from mobile client and updates the database to implement the instructions; 3) The mobile client reminds the administrative people of approving the application; 4) The mobile client reflects the feedback outcome to teachers.

Secondly, the mobile client switches the system from computer interface into user-friendly mobile phone interface, so that teachers can log in the system under mobile web anywhere and anytime without a computer.

Finally, characteristics like stable running, easy operation and multi-functional expansion are considered when designing this system.

## **3.2 Technology in the Design**

### **3.2.1 WeChat**

WeChat is a mobile text and voice messaging communication service developed by Internet giant Tencent Holdings Ltd. in China, first released in January 2011 (Li & Li, 2013). It is a free appliance which provides real-time communication service for smart phone users. WeChat supports cross-telecommunication operators, cross-operation system platforms to use the mobile internet to send texts, voice messages, videos, images and support group talks (Su, 2013). Since the first Mobile Instant Messaging (MIM) application, Path, released in 2010, users in China explodes to nearly 400 million by the year of 2013 (Lu, 2013). As of the same year, the most popular MIM application of WeChat has gained 300 million users, which occupied 70% of the whole market, owing to its more flexible and smarter using experience towards users (Wei, 2013).

### **3.2.2 WeChat Public Accounts Platform**

In August 2012, Tencent launched WeChat Public Accounts Platform which added new functions for WeChat app. Both individual and organization users can register public accounts in WeChat. Subscription account which is registered by individual is for pushing content by message and service account which is registered by organization is for advanced features such as interactive menus and payments. In our design, the latter is adopted. This public account doesn't only enable followers receive instant messages including text, voice and pictures, but also provide an interactive menus functioning like an advertisement platform that collects related information of the organization. As the WeChat has been widely used in varied mobile phone operating systems, such as IOS, Android, WP etc., the educational administration system will be independent to the platforms. Additionally, WeChat Public Accounts Platform provides automatic response function, that is, followers may receive answers to frequent questions or consult information by editing specific key words or instructions into the public account.

### 3.3 The principals of designing the system

This system adopts WeChat Public Platform as the technological basic to realize the assumption of mobile client, which interacts with the database in PC terminal through the HTTP Server. After binding and applying for verification, users become subscribers to public account of JOUMEAS, then teacher users may apply course rescheduling and check the curriculum information through JOUMEAS, and administrative staff users may receive messages as notice of approval. In this system, the functions of binding, verification and query are realized in terms of automatic response, while the course rescheduling application should be completed after administrative people's approval.

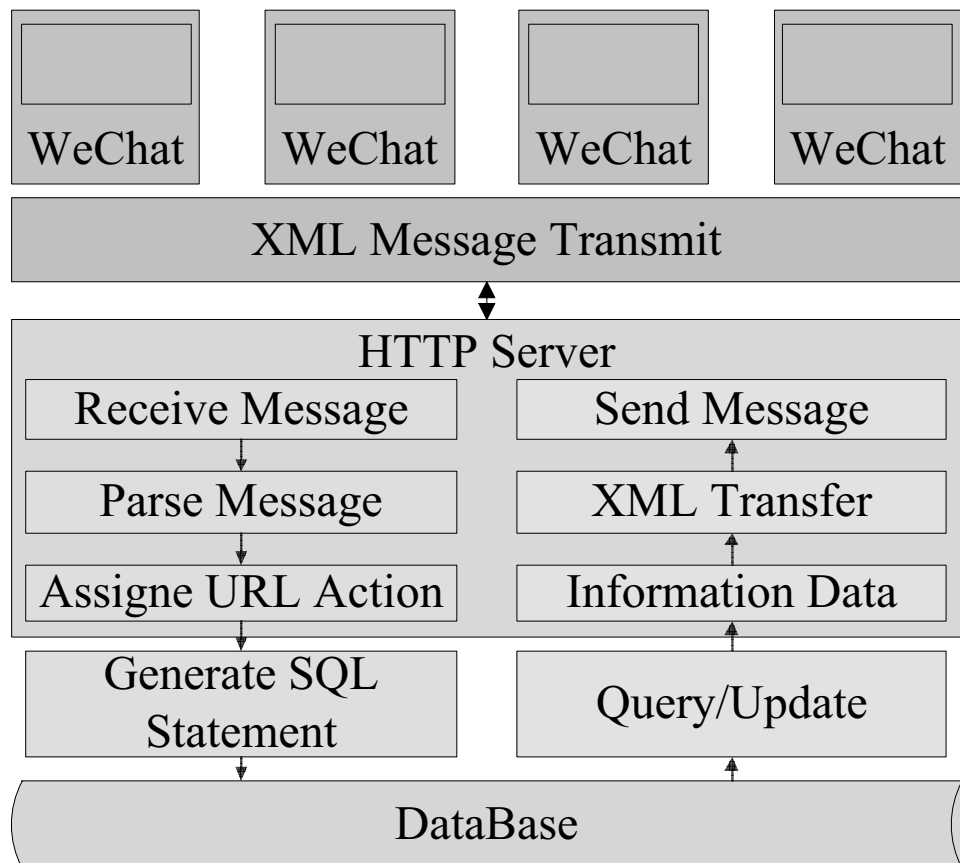


Figure 2. Diagram of WeChat Client Auto-Response Mechanism

As is shown in Figure 2, the functions of binding, verification and query are realized by WeChat Client auto-response mechanism. Teacher user inputs binding or query information when logining into WeChat Client, these information, as signal data, will be transmitted into XML message sent to HTTP server. Consequently, HTTP Server utilizes Script File to receive and analyze the XML message, thereby generating URL action. Other than operated manually, this action automatically transmits to corresponding SQL statement, so as to interact directly with database in PC. When carrying on query function, the system retrieves data, whereas when doing binding function, the system needs update the data in the database. After the interaction process, the system reflects the acquired data back to HTTP Server, which using the same Script File to transmit the received data into XML message, and then send the message to

WeChat Client.

Since the course rescheduling application should be approved by administrative people, the system designs a reminder function to improve work efficiency. When teacher user applies for course rescheduling, WeChat Client will send XML message to HTTP Server, which interprets the message into application action. This action will be sent to PC, and in the meanwhile a notice message will be sent to administrative user through WeChat Client. After the approval, operation action reflects back to HTTP server and the consequently generated SQL statement will update the database. When the updated data go back to HTTP server, produced XML message will be sent to teacher user's Wechat app. The whole procedure is as follows:

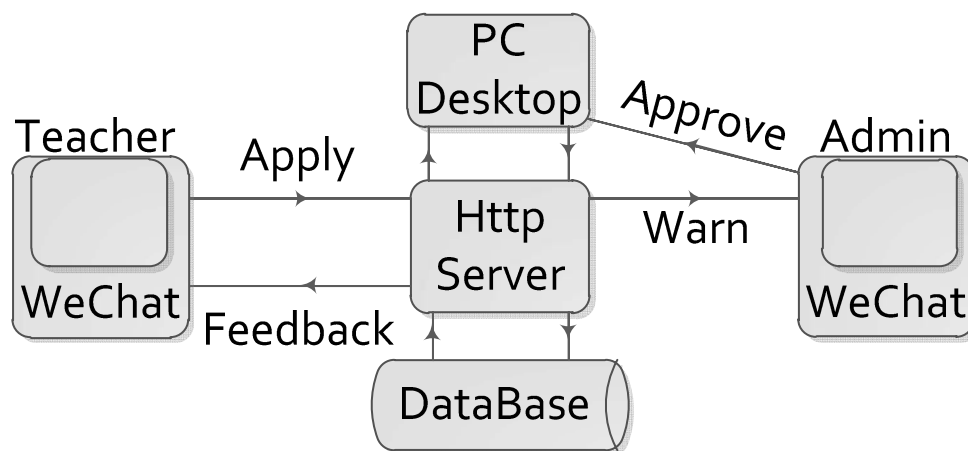


Figure 3. Diagram of teacher user's application process with JOUMAAS

#### 4. Conclusion

This design of mobile educational administration system is considered as a supplement for improve the prevailing educational administration system in most universities and open institutions. The core technological base is to adopt a mobile instant messaging app, WeChat, as the mobile client, which automatically transmits message to PC terminal, so that users only need to use mobile phone to apply the applications. A detailed example of how to apply a course rescheduling is exemplified in the article, illustrated with technological explanations. This design realizes the consumption that users may access the mobile educational administration system anywhere and anytime, which provides a fundamental theory to carry out further research on expanding the multiple functions of WeChat Public Accounts Platform for bringing more conveniences to people's life. Further research areas may focus on improving the interface of WeChat app, so as to provide more user-friendly system.

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# The devepoment of a hybrid learning system model in an academic training programme on instructional materials research

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## Abstract

The aim of this study is to develop a model of hybrid learning system applied in a training of research on instructional materials in Universitas Terbuka (UT). A research and development (R and D) method was used to develop the hybrid learning model. The R and D method consists of several systematic and holistic steps such as: (1) conducting needs analysis; (2) establishing instructional goal; (3) implementing instructional analysis; (4) analyzing trainees and setting; (5) establishing instructional objectives; (6) developing assessment instruments; (7) developing a syllabus and instructional strategy; (8) developing learning materials; (9) conducting a formative evaluation.

This study was motivated by the expectation of the UT's lectures ability in researching instructional materials. UT has Lecturers who are in 37 UT's Regional Offices. UT have facilities adequate support for the implementation of distance learning. One of the facilities and infrastructure that can support distance learning in UT is its network, space, tools, and resources that enable humans to communicate using video conferencing. Video conference facilities were used to deliver the Academic Training Program of Instructional Materials Research to the lecturers who stay in UT Regional Offices. Research and Development to optimize the use of video conferencing for learning programs, and to find a model of learning systems. This model of learning system called Hybrid Learning, because learning is designed to implement the distance and face to face system. The materials presentation conducted in distance learning via video conferencing. Consultation, completion of tasks, and training outcomes assessment carried out face to face is guided by facilitators in the regional offices.

At the step of the research and development, we conducted data collection, recording, documentation, record keeping, and surveys. Formative evaluation will be done through learning activities at 8 Regional Offices video conference participants, and the number of participants is 40 lectures.

The result of the study reveals that the use of a hybrid model learning system was recommended conducting a training program for the participants who live in UT's Regional Offices.

**Key words:** R&D, hybrid learning model, instructional materials research.

## **Introduction**

Universitas Terbuka or UT, through its research institute, provides opportunities to its lecturers to conduct research. The lecturers have to follow a certain procedure to apply their research interest. They have to write a research proposal to be reviewed. Based on the review process, it is judged that some of the proposals are inadequate as a research project.

It is necessary for UT to conduct a training program to increase the competencies of its lecturers in writing proposals and conducting a research project. Around 50% of the UT's lecturers live in regional offices of UT. There are 37 regional offices of UT located in all provinces. Based on this condition it is necessary for UT to use communication media to deliver the training material to trainees. In this sense, UT has to use video conference facilities as a medium to convey training substances. UT equipped its regional offices with video conference facilities.

The aim of this research is to develop model of a hybrid learning system that can be used in an academic training program for instructional materials research. The result of the study is to produce the model of the learning system recommended to conduct a training program on writing learning material research proposal for UT's lecturers through video conferences.

## **The hybrid Learning**

The term hybrid learning, blended learning and mixed mode learning are often used interchangeably. Purnima (2002) noted that: "...blended learning is used to describe a solution that combines several different delivery methods, such as collaboration software, web based courses, EPSS (Electronic Performance Support System), and knowledge management practices." In addition, Rooney (2003) explained the terms of blended learning as a hybrid learning concept integrating traditional in class sessions and e-learning elements.

Blended learning means many things to many people, even within our relatively small online learning community. It is referred to as both blended and hybrid learning, with little or no difference in the meaning of the terms among most educators. In general terms, blended learning combines online delivery of educational content with the best feature of classroom interaction and live instruction to personalize learning, allow thoughtful reflection, and differentiate instruction student across a diversity of learners. (Inacol in [http://sites.google.com/a/idahopd.org/blended learning](http://sites.google.com/a/idahopd.org/blended%20learning), 13 February 2013)

Based on the above description, blended learning can be defined as a method of instruction which combines an e learning system with a face-to-face method. In other words blended learning can be defined as an approach which combines a face-to-face

learning activity with a type of learning uses integrated computer medium. Blended learning can be described in the following figure.



*Figure 1.*

*Blended learning methodology*

In general, blended learning has three basic meanings: (1) Integration of face-to-face learning with online based learning; (2) The use of online media in class; (3) Combination of some learning approach individually, group and demanded leaning.

The aim of using a blended learning approach is to gain instructional impact from combinations of face-to-face learning and online based instruction. Through face-to-face learning the student will get a real learning experience. The students will get involved in intensive learning interaction with lecturers. Online learning will enable the students to learn without the limitation of time and place.

There are six models of learning approach delivered through blended learning. Those are:

1. The "face-to-face driver" model, in which a teacher in a traditional classroom instructional setting employs online learning for remediation or supplemental instruction;
2. The "rotation model", in which students move back and forth between online and classroom instruction;
3. The "Flex", a model in which the curriculum is delivered primarily through an online platform, with teachers providing on-site support;
4. The "online lab" approach, wherein an online course is delivered in a physical classroom or computer lab;
5. The "Self-blend", a model in which students choose on their own, which courses they take online to supplement their schools' offerings; and
6. The "online driver" model, where the courses are primarily online and physical facilities are used only for extracurricular activities, required check-ins, or similar functions.

## **Research on Learning Materials in Distance Learning**

UT uses open and distance learning system in conducting their educational program. The system uses various types of media to deliver instructional content to students. UT applies both printed and digital media as learning materials. Printed media, in this context is used as the main medium to deliver learning substances. It is designed with a modular system, so it can be learned systematically by the students. The UTs printed learning materials are called modules. The modules consist of several learning activities for the students. In addition, the modules describe the content and learning strategies that can facilitate students to attain predetermined competencies.

The UT's printed medium, is called modules. Printed medium is designed an instructional system which consists of instructional objectives, course content, instructional strategy methods and learning resources applied to make the students learn. UT's digital media-web and internet –mostly used as a supplementary learning materials. The web of UT enables the students to use various learning materials to be learned.

UT has to assure the quality of its learning materials. One of the methods to be applied is conducting research on learning materials. One of the approaches used to conduct research on learning materials is formative evaluation. This type of approach is aimed to improve the quality of learning materials while they are developed. Formative evaluation can be defined as an approach used to try out and revised the program during its developmental stages to make it useful when it is applied in real settings. Formative evaluation is considered as a part of research and development method used to create a learning material.

Research and development method consists of systematic and holistic stages to prepare and to create a learning material that can be used effectively in a real instructional setting. In order to assure and to increase the quality of its learning materials it is necessary for UT to train its lectures to be able to conduct effective research on the learning material. UT has to use hybrid learning approach to conduct the training on learning materials research.

## **Instructional design on hybrid learning**

In order to develop a hybrid learning model applied to learning material research training, it is necessary to implement a model of instructional design. Instructional design refers to a systematic activity to create an effective learning program.

This research on developing a hybrid system of learning material for UT's academic staffs implement an instructional design model which is called MPI – Model Pengembangan Instruksional – developed by Suparman (2005). This model, modified from an instructional system design model of Walter Dick and Lou Carey (2009), consists of nine stages which are used to design an Instructional Program. Those stages

are: (1) Conduct a need analysis; (2) Stage an instructional goal; (3) Conduct instructional analysis; (4) Analyze the students and learning facilities; (5) State instructional objectives; (6) Develop task, assessment criteria, syllabus and instructional strategy; (7) Develop learning and presentation materials; (9) Conduct a formative evaluation of program prototype. This can be seen in the following figure.

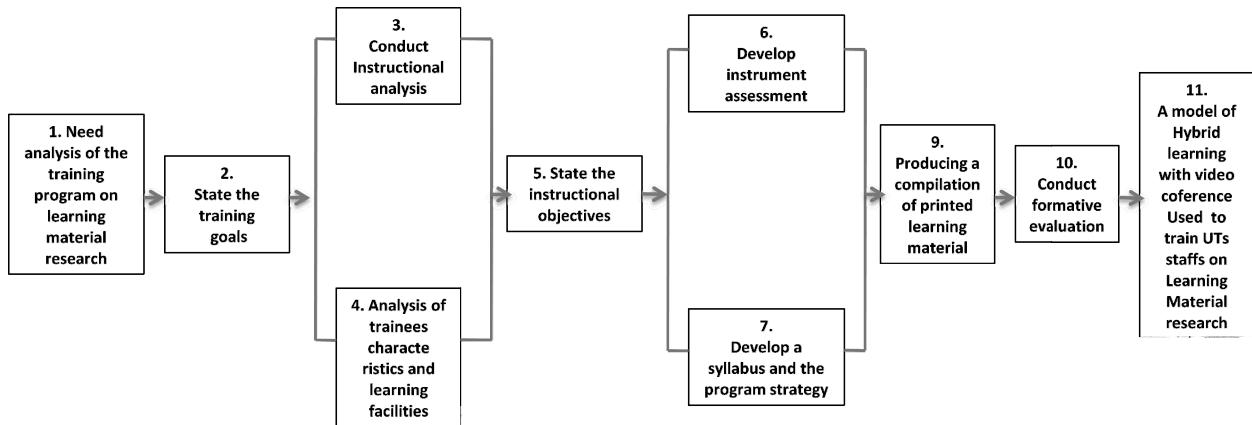


Figure 2.

*MPI model of Instructional System Design*

Specifically, there are several research activities done to develop a model of hybrid learning of training on learning material research. The research activities included:

- Need analysis, which is followed by stating the instructional goal of the training program.
- Develop a program design to produce a syllabus consists instructional objectives, training strategies, tasks, and training substances.
- Develop a guidance to conduct a training program of learning material research based on a hybrid learning model.
- Develop assessment instruments to determine the student learning achievement and the quality of the program.
- Develop an interview guide to gather information regarding the preparation of the training, conducting the training program, and assignment that they should be done from:
  - Head of UTs regional offices
  - Facilitators
  - Trainees – through focus group discussion
  - Video Conference Management
- Record the process of learning with hybrid learning model in video digital media, during the training program running.

- Record the process of learning with hybrid learning model in note or daily journal.
- Qualitative data analysis.

### **The results of the study**

The study of the development of hybrid learning system model in an academic training program of instructional materials research produces a conceptual model with the following description.

- The model consists of the two main areas – the system and the supra system. The system has three main components such as: input, process and output.
- The trainee characteristics and their entry behavior are considered as the input.
- The input - the trainee characteristics and their entry behavior – will be processed in the interactive activities of hybrid learning model used video conference facilities.
- There are several important components that influence the process of learning with the hybrid learning model. The components are: (1) training instructor; (2) compilation of printed learning materials; (3) digital learning materials for video conferences; (4) equipment and technician of the video conference; (5) management in regional offices; (6) management at UT; (7) the process of monitoring and evaluation.
- Conducting the hybrid learning model as an instructional system is influenced by external factors such as: (1) National education policy related to the research; (2) research policy in Universitas Terbuka; (3) knowledge and technological development in media and learning materials.
- The output of the system – the trainees who are able in writing research proposals and conducting research on distance education learning material will enter the supra system.

The Conceptual Model of Hybrid Learning using the video conference facilities for training UTs lecturers on learning material research can be seen in the following diagram.

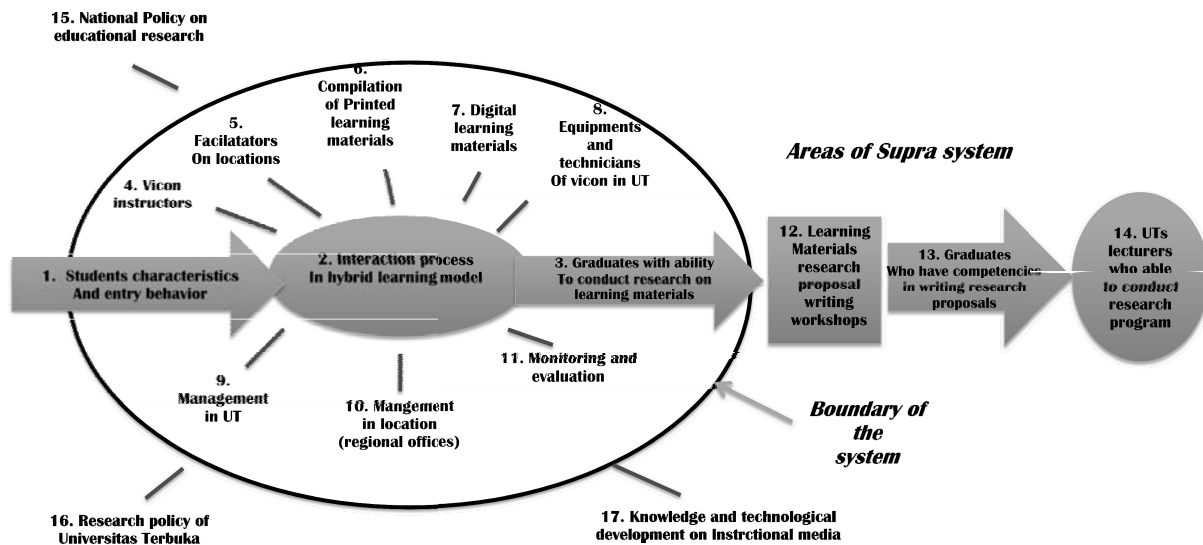


Figure 3.

*Model of Hybrid Learning implementing Video Conference as delivery system.*

This model will produce the trainees who have ability in writing proposal and conducting research projects in developing media and learning materials that can facilitate students' learning process.

## Conclusions

Learning materials – both in printed and digital form – can be considered as an important component part of the distance learning system. They are used to deliver learning substances to students. UT has to assure the high quality of its learning materials to be used by students.

Workshop and training programs regarding learning materials development and training should be held continuously. Since the lecturers have the main responsibility in assuring the quality of UTs learning materials, it is necessary for them to participate in learning material workshops and trainings. UT has to find an appropriate training strategy to improve research skills of it's academic staff.

To conduct the workshop and the training program on learning materials research, UT has to involve the lecturers who work both in central and regional offices. In this case UT has to consider to use the synchronous video conference facilities in delivering its learning substances. Beside asynchronous autoreal

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Februari 2013



# Survey of external stakeholders' image of STOU

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## Abstract

To enhance institutional management universities should understand their stakeholders, especially those who have never experienced a distance learning system. This survey research aims to understand the university's external stakeholders: potentials students, current students, media and opinion leaders, in terms of (1) their media exposure, (2) their perceptions, (3) their participation with the university, (4) the STOU's image, and (5) relationships between media exposure and perceptions of STOU.

Survey method was employed to collect data from 2,120 samples from 12 provinces around the country. The study population was the university's external stakeholders consisting of the general public, executives and workers in both governmental and private sectors, alumni, community leaders, academia, and media professionals. Stratified random sampling was applied in the sample selection process. Statistic analyses were applied to analyze quantitative data including frequency, percentage, mean, standard deviation, Pearson product-moment correlation coefficient, and Chi-square.

The result: (1) external stakeholders were exposed to STOU information at the lowest level; (2) external stakeholders mostly had a high perception of STOU; (3) in terms of participation, most external stakeholders had never participated in any activities of the university; (4) the external stakeholders perceived a highly positive image of STOU; (5) there was a statistically significant correlation between the external stakeholders' perception of STOU and their media exposure (broadcasting media, the internet, outdoor media, interpersonal communication and CD/VDO)( $p < .05$ ). Strategic plans to build and enhance the external stakeholders' perception and image of STOU are suggested. Especially there should be various institutional plans concerning synergy strategy, public relations strategy, and marketing strategy.

**Keywords:** external stakeholder, perception, participation, image, STOU

## Background and justification

For the past 35 years Sukhothai Thammathirat Open University (STOU) has striven to serve society by fulfilling its mission of being an open university that provides lifelong education, develops the quality of the citizens, augments the academic standing of professionals, and expands educational opportunities by organizing a distance education system that enables people to study by themselves using print media, radio and TV broadcasts and other methods so that the students do not need to attend regular classroom classes.

In its public relations work, STOU mainly aims to present news about the university's activities and to recruit new students. Public relations content is broadcast through TV, radio, newspapers and other print media. However, the public relations

work is done as routine work without any unified long-term planning. For that reason it has not been able to meet the needs of the university's policies, vision, mission and strategies as well as it should.

In order to better fulfill the university's policies, vision, mission and strategies, STOU needs to improve its potential in every area and ready itself to employ several new tactics. One of the important tactics is to build up a good image of the institution that will give people in the university's target audience and the general public a better understanding, satisfaction, acceptance, confidence and faith in STOU. They will then be willing to support the university in every way and participate in all its activities. Improved image-building will help STOU expand its operational potential and compete with other institutions in the market.

STOU's image means the overall image of the institution in the eyes of target groups and stakeholders. The image arises from people's experiences and the news and information they receive, which form an impression in their minds. Whether the image is positive or negative depends on the organization's behavior as well as its management of public relations and other messages in the media, which can be used to build and maintain valuable relationships between the university and its diverse target groups. A good image for STOU or "the STOU brand" will lead to success by building confidence, credibility, and a good reputation for STOU.

STOU needs to have a strategic public relations plan to build a good image to support the university's vision, mission, and strategies. The public relations department is the main unit in charge of this strategic plan to build and improve the university's image. The first step is to carry out research to survey and assess STOU's current image among external stakeholders, their idea of what STOU's ideal image should be, and to study the factors that affect the current image. The data from this research will lead to the formation of a strategic plan to build up and improve the university's image in a proactive way, which will increase STOU's ability to compete in the higher education market.

### **Objectives**

- 1) Study external target groups' exposure to news and information about STOU;
- 2) Study external target groups' perceptions of STOU;
- 3) Study external target groups' participation with STOU;
- 4) Study external target groups' image of STOU;
- 5) Study the relationships between external target groups' exposure to news and information about STOU and their perceptions of STOU

### **Scope of research**

**1) Time period** STOU's image and ideal image were surveyed in 2011-2012.

**2) Population** Stakeholders external to STOU were studied, consisting of the general public, secondary school students, university students, personnel in government-sector and private sector organizations, community leaders, politicians, ideological leaders, network leaders, STOU graduates, current STOU students and club members, employers of STOU graduates, academics, and journalists, all from greater Bangkok and from other regions of the country.

## Definitions

**1. STOU's image** – the mental image of STOU in the minds of the external stakeholders that arose from their accumulated perceptions to form an overall picture of their beliefs, ideas, feelings and impressions towards STOU, both positive and negative, covering the following aspects:

### **1.1 STOU's determination, vision and mission:**

- **Determination:** As an open university, STOU is determined to stand by the principles of lifelong education, develop the quality of the citizens, augment the academic standing of professionals, and expand educational opportunities for secondary school graduates to meet the needs of the individual and society by organizing a distance education system using print media sent through the mail, radio and TV broadcasts and other methods to enable people to study by themselves so that the students do not need to attend regular classroom classes.

- **Vision:** STOU aims at being a leading world-class open university that employs distance education to make lifelong education available to all.

- **Missions:** (1) To develop distance learning for the production of qualified graduates of all levels who can meet the needs of national development plans; (2) To develop human resources, develop communities, develop organizations, and develop social institutions, leading to a learning society and a knowledge-based society. (3) To research, promote and develop the body of knowledge and local indigenous wisdom; (4) To preserve, promote and develop Thai arts and culture; and (5) To develop the organization.

**1.2 Management-** efficient, transparent, modern, fair, international standard, competitive

**1.3 Services-** convenient, fast, credible, reliable, comprehensive coverage, always developing

**1.4 Technology and teaching-** a distance education system that utilizes online and off line media technologies

**1.5 Research and development-** research to develop the distance education system, academic research, institutional research, and development of the potential of researchers

**1.6 Personnel-** knowledge and abilities of the personnel to provide academic, support and administrative educational services

**1.7 Social responsibility-** academic services to society and the production of graduates to meet the needs of society

**1.8 Graduate quality-** production of graduates with the following qualities: (1) theoretical knowledge, practical skills, and basic knowledge that can be efficiently applied in the work place; (2) innovative, creative, public spirited, willing to be work productively for the good of society; (3) moral, ethical, professional, and responsible to their career and society.

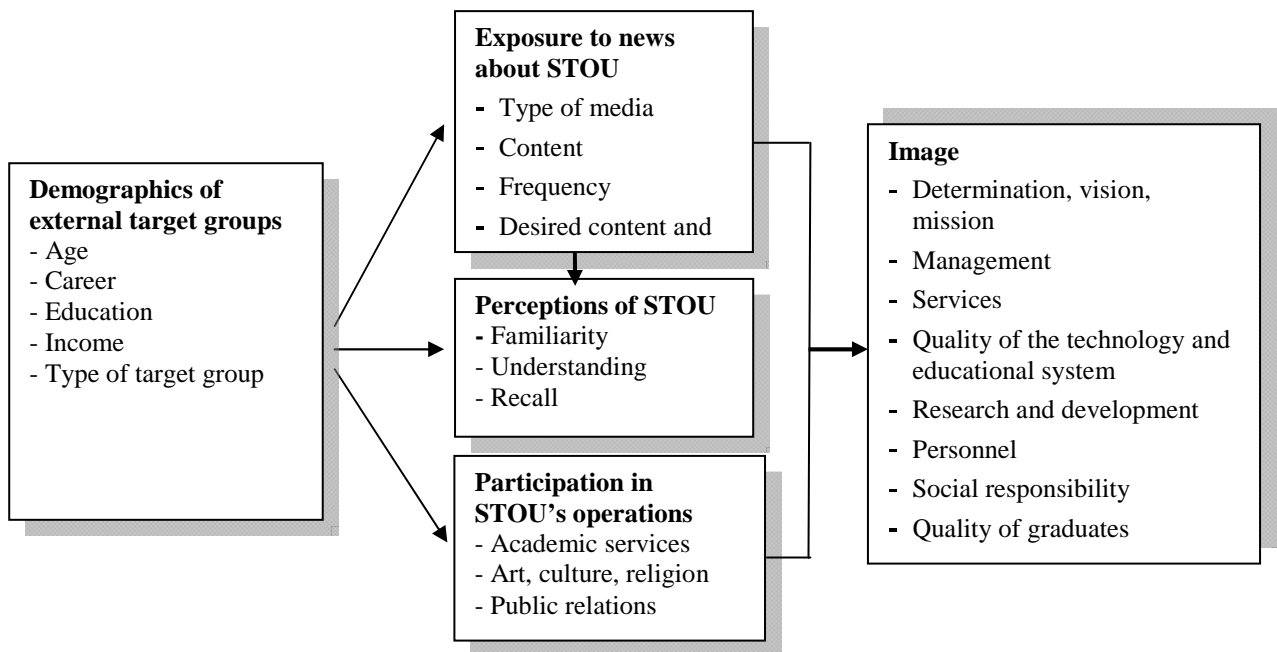
**1.9 STOU's identity-** An image or a thing that STOU defined and presents or intends to express in a tangible and visible way that can make the target groups recall and clearly differentiate STOU from other organizations. STOU's identity is intended to create awareness of the organization's outstanding characteristics, namely, the distance education system, distance education management, expansion of educational opportunities and lifelong education.

**2. Exposure to news about STOU-** receipt of information about STOU through reading, watching or listening, covering the kind of medium, the kind of information, the frequency of receiving information, and the continuity.

**3. Perceptions of STOU-** the target groups' overall knowledge, understanding, interpretation and remembrance of STOU and their familiarity, understanding and recall of various aspects about STOU.

**4. Participation in STOU's operations-** the external stakeholders' actions to join in activities organized by STOU, including academic service activities, art, cultural or religious activities, and public relations activities, including participation in the stages of initiation, operations, and receiving benefits.

### Conceptual framework



### Methodology

This was a survey research using the following methods:

#### 1. Population and Sample

**1.1 Population** STOU's external target groups, consisting of 1) the general public; 2) students; 3) personnel working in government sector or private sector organizations; 4) community leaders/politicians/ideological leaders/network leaders; 5) STOU alumni; 6) current STOU students/members of STOU student clubs; 7) employers of STOU graduates; 8) academics and professionals; and 9) journalists; in all parts of the country.

**1.2 Sample** 2,120 examples of the external target groups, chosen through multi-stage random sampling. Geographically, the samples came from the following areas: Northern region, Northeast region, Central region, Southern region, and Greater Bangkok area

**2. Research tools** A questionnaire was used to collect data. The researcher asked an expert to test the validity and reliability of the questionnaire using the Alpha Coefficient method and the tests showed it had a reliability of .9696 and a reliability rating of 96.96.

**3. Data collection** Questionnaires were given to the 2,120 samples and 2,267 properly filled out questionnaires were returned.

**4. Data analysis** Data were analyzed using the statistics of frequency, percentage, mean, standard deviation, Pearson's Product Moment Correlation Coefficient and Chi-square.

The interpretations of the rating scales are as follows:

(1) Exposure to news about STOU/ STOU's image

Mean value	Interpretation
4.21 – 5.00	Most exposure/ best image
3.41 – 4.20	High exposure/ very positive image
2.61 – 3.40	Medium exposure/ medium image
1.81 – 2.60	Low exposure/ slightly positive image
1.00 – 1.80	Least exposure/ least positive image

(2) Awareness of STOU

Awareness score	Interpretation
> 80%	High awareness
60-80%	Medium awareness
< 60%	Little awareness

(3) STOU's personality

Mean	Interpretation
4.21 – 5.00	Very good
3.41 – 4.20	Good
2.61 – 3.40	Fair
1.81 – 2.60	Poor
1.00 – 1.80	Very Poor

## Results

### First research objective: assessing exposure to news about STOU

**1) Exposure to news about STOU** *Overall*, the respondents reported that in the past 3 months they had received **the least** news and information about STOU. Considering exposure to news in the different kinds of media, they were exposed to the least information from TV, websites, personal media, print media, activities, outdoor media, radio, telephone, and CD/VCD media, in that order.

**2) Content** The types of news the respondents were exposed to about STOU were primarily messages about new student applications, followed by news about the curricula, knowledge and training.

### Second research objective: assessing perceptions of STOU

**1) Level of perceptions** Respondents of STOU alumni and current STOU students had a high level of perceptions of STOU. Students and personnel of government sector or private sector organizations had a medium level of perceptions of STOU. The general public had a low level of perceptions of STOU.

**2) Topics of perceptions** The majority of respondents were perceive that STOU is an open university, uses a distance learning system, and emphasizes expanding educational opportunities and lifelong learning. The second largest number of respondents were perceived that students of other institutions can apply to study at STOU at the same time; that STOU provides academic services to society; that STOU has Distance Education Centers in every region of the country; that STOU provides education for the disabled; and that STOU's distance learning system uses course materials, books and other media so that students do not have to attend classes.

**3) Perceptions of the STOU seal** 3 out of 4 of the respondents had correct information about the STOU seal.

**4) Recall of STOU mottos** Almost all the respondents could not recall STOU's mottos. Only a small number could remember "Study with happiness, graduate with quality" and even fewer could remember "STOU is a leading world-class open university that employs distance education to make lifelong education available to all."

### **Third research objective: participation with STOU**

**1) Attendance of training sessions or other activities organized by STOU** Most of the respondents polled had never joined in any training sessions or other activities organized by STOU. The main reason given was that they did not know about these activities. The second most common reason was that they were aware of the activities but did not have the chance to join, followed by they did not want to join. For those who had participated, the activity they participated in the most was educational counseling, followed by STOU student club activities and training/seminars.

**2) Listening to STOU radio programs** Most of the respondents polled had never listened to any of STOU's educational radio programs. The main reason given was that they did not know about these programs. The second most common reason was that they were aware of them but did not have the chance to listen, followed by they did not want to listen. Of those who had listened, most said they listened to STOU's educational programs on Radio of Thailand or 102.5 MHz (the name of the program was not given), followed by regional radio stations.

**3) Watching STOU TV programs** Most of the respondents polled had never watched any of STOU's educational TV programs. The main reason given was that they did not know about these programs. The second most common reason was that they were aware of the programs but did not have the chance to watch, followed by they did not want to watch. For those who had watched, most said they watched "*Gaow Bai Gap STOU*," "*STOU Knowledge for the People*," "*Rob Rua STOU*," or "*Law for the People*" on Thai TV channel. The next most frequently watched were "*Khao Khon Kohn Kao*" on Channel 9 and "*In the Wide World Documentary*" on STOU Channel.

**5) Accessing the STOU website** Most of the respondents polled had never accessed the STOU website. The main reason given was that they did not know about the website. The second most common reason was that they were aware it but did not have the chance to look at it, followed by they did not want to use it. For those who had accessed the STOU website, the page they looked at the most was the home page, followed by the course list page and the exam results/grade page.

**6) STOU activities** Most of the respondents polled had never joined in any of STOU's activities. The main reason given was that they did not know about these activities. The second most common reason was that they were aware of the activities but did not have the chance to join, followed by they did not want to join. Of those who had participated, most said they had participated in holiday or tradition activities such as the Red Cross Fair, followed by the Royal Kathin ceremony and the Loy Krathong ceremony.

### **Fourth research objective: STOU's image**

**1) The first thing people think of when they hear "STOU"** The first group of phrases most respondents thought of were "open university/ educational opportunities/ open system/ liberal open education/ course market." The second most frequently cited phrases were "distance education/ independent study/ no need to go to classes/ self study/ read by yourself/ study at home."

**2) STOU's image** Overall, the majority of respondents had a *very positive image* of STOU. Considering the different aspects, the majority of samples had a *very*

*positive image* of STOU's determination, vision, missions, management, services, quality of technology and the teaching system, research and development, personnel, social responsibility, and quality of graduates.

Although all respondents had a *very positive image* of STOU, the respondents that gave the highest scores for current image of STOU were STOU alumni, followed by current STOU students, employers of STOU graduates, the general public, students, and personnel of government sector and private sector organizations.

**3) Opinions on STOU's reputation** Almost half of the respondents reported that STOU had a good reputation, and the next largest group said that STOU had a medium reputation.

**4) Expectations for STOU** Overall, respondents had *high level* of expectations for STOU. The highest scoring expectation was that STOU would be a university that provides opportunities for lifelong education for all, followed by (ranked in order of score) the expectation that STOU would have knowledgeable and capable teaching staff, would produce graduates with knowledge and capabilities, would provide educational services equally all over the country, would produce graduates with good morals and ethics, would help develop communities, organizations and institutions in society to create a learning society, would provide bachelor's degree, master's degree and PhD courses in every subject area, would continuously make advancements as a progressive institution of higher learning, would have good management, would produce graduates who can communicate and use technology appropriately, would have transparent, accountable and fair operations, and would be a leading world-class provider of distance education.

**5) Desired personality for STOU** The top 5 qualities that the respondents desired in STOU's personality were stability, modernity, intelligence, love of advancement, and enthusiasm. The less important personality traits, ranked in order of score, were speediness, happiness, goodness, admirableness, maturity, realness, strength, cleanliness, helpfulness, liveliness, openness, politeness, attractiveness, brightness, excitement, flexibility, desire to improve, calmness, and relaxation.

### **Fifth research objective: Relationships between exposure to news and perceptions of STOU**

- 1) There was a statistically significant relationships ( $p < 0.05$ ) between exposure to radio news and perceptions of STOU.
- 2) There was a statistically significant relationships ( $p < 0.05$ ) between exposure to Internet news and perceptions of STOU.
- 3) There was a statistically significant relationships ( $p < 0.05$ ) between exposure to outdoor media news and perceptions of STOU.
- 4) There was a statistically significant relationships ( $p < 0.05$ ) between exposure to mobile telephone news and perceptions of STOU.
- 5) There was a statistically significant relationships ( $p < 0.05$ ) between exposure to news from personal media and perceptions of STOU.
- 6) There was a statistically significant relationships ( $p < 0.05$ ) between exposure to CD/video news and perceptions of STOU

### **Discussion**

**1. Perceptions of STOU** The data showed that more than half of the external stakeholders *had a high level of perceptions* of STOU, especially the groups of STOU

alumni and present STOU students. It was notable that other groups, such as secondary school or university students and personnel working at government or private sector organizations had a medium level of awareness of STOU. Comparing the respondents' perceptions of STOU's policies, vision, missions, management, services, research and development, personnel, and social responsibility, *they were least aware about services*. This could be because the external stakeholders did not receive news and information about STOU's services and related rules, and this made them less interested in other news about STOU. Perceptions of STOU's policies, vision and missions was also lacking due to the same reason.

**2. STOU's image** The data showed that when they heard "STOU" most of the people polled first thought of an open university/educational opportunities. One of STOU's strengths is that the external target groups thought that STOU's image was very positive, especially in terms of its determination, vision and missions, its management, and quality of the instructional technology system. It is remarkable that the groups that had the most positive image of STOU were STOU alumni, present STOU students and employers of STOU graduates. This indicates that people who have direct experience with STOU will have a good image of STOU. In addition, STOU's personality as perceived by the external target groups was very positive, with the salient qualities of maturity, goodness, admirable, and secure. It is interesting to note that while *STOU's image was a positive one*, which was compatible with the data on awareness, still most people surveyed reported receiving the least news and information about STOU from all the different media. This could be because there are STOU alumni all over the country who are important personal media that can spread news by word of mouth to give the general public awareness and a good image of STOU. Also, STOU was the first and is the only distance education university in Thailand and has been in operation for 35 years, so it has been able to build up a good reputation over a long period.

The survey results also revealed one of the *weak spots of STOU's organizational personality*, which was perceived by some as boring, unattractive, negligent and not aiming to improve. This was backed up by the data on *the desired personality of STOU*, which respondents said they wanted to be secure, modern, intelligent, and advancement-loving. This may be due to STOU's failure to organize enough activities that make the organization appear proactive as well as a general insufficiency of public relations communications to the public.

**3. Participation in STOU's operations** It is notable that the majority of all external target groups said they had not participated in any activities organized by STOU, mostly because they thought they did not have the opportunity to join. *STOU has not organized enough activities that the target groups can participate in, and the activities may have not been offered in all regions and localities of the country. The activities organized by the university may have appealed to too narrow groups or been too localized. Also, people in the target groups may not have received news and information that would interest and encourage them to participate. It is possible that the activities organized did not match well with the available time, tastes, interests and benefits of the target groups.*

In terms of participation in the form of exposure to STOU media, most of the survey respondents said they had not watched STOU TV programs or listened to STOU radio programs, and only a small number had visited the STOU website.



#### **4. Relationships between exposure to news and perceptions of STOU**

Relationships were found between the respondents' exposure to news about STOU and their awareness of STOU, but they were mostly minor relationships. This is most likely because the majority of respondents reported being exposed to the least news about STOU from every medium.

#### **Recommendations**

The researchers have the following suggestions for applying the research results and for further study:

##### **Practical applications**

Key Success Factors for setting a strategy to improve STOU's image

**1) Policy level** STOU should set a policy for building up acceptance, confidence, faith, credibility, and cooperation in all stakeholder groups. The policy should aim to build STOU's values that match the expectations of target groups and also support STOU's other policies, vision and missions. The policy should set the groundwork for an action strategy for building up STOU's image.

**2) Strategy level** STOU should set an organization-wide strategy for corporate image and corporate brand building and maintenance that supports the above policy. The master strategy should delineate working strategies and operations tactics for the units involved, telling how to manage communications to build and maintain valuable relationships between STOU and diverse target groups, using public relations for image building and brand building. The strategy should consist of:

**2.1) Using a clear and unified logo** The logo should always have the university's name or abbreviation (STOU) to create differentiation and to emphasize the university's symbol.

**2.2) Define a unique, outstanding and clear corporate image that differs from other educational institutions** The image must reflect STOU's identity and the expectations of stakeholders. For example "Leading distance education institution that provides lifelong educational opportunities for all, with responsibility to society."

**2.3) Make an image public relations plan** Draw up a strategic plan and operations plans to plan public relations with an aim to building STOU's corporate image. This requires a continuous effort.

**2.4) Corporate Social Responsibility projects** The university should plan CSR projects that meet the needs of society, are sustainable and can be built upon. They should be compatible with STOU's standpoint, image, culture, values and capabilities. Each CSR project should be carefully planned with defined tactics and goals with measurable results, and should be evaluated repeatedly in the long term.

**2.5) Organize community communications projects in every locality** Utilize community relations tactics intended to build good relations with community leaders and local journalists. The main tactic should be to "*build a network of STOU community leaders.*" Frequent activities will have to be planned to keep up the network's momentum.

**2.6) Set up an appropriate image management system and mechanisms** This encompasses the two major factors that influence STOU's image-building efforts, namely, STOU itself and the public (target groups). STOU's image-building process should begin with 1) *Defining STOU's corporate personality*, reflecting the university's philosophy, values, and missions; followed by 2) *Setting a corporate communications strategy* starting from the executives' vision and leading to

the products and services. This will define STOU's corporate identity, which consists of (1) the behavior of STOU's executives and personnel that people in the target groups see, experience or contact directly or perceive from news messages. The university's executives should make sure that they themselves and all the people who work with them use behavior that embodies STOU's corporate personality and identity. The organizational culture should be fine tuned to match the corporate identity as well. (2) Visible, tangible symbols of STOU – such as the courses of study at different levels, the university's services, administration, history, name, logo, and photographs. All these should be unique, memorable, and impressive. (3) STOU's communications – when people in the target groups receive communications from STOU they will integrate it as part of their image of STOU in their minds. The effect of STOU's communications can be measured by assessing the target groups' attitudes toward STOU.

### **3) Operations level**

**3.1) *The different target groups should be analyzed and communications should be tailored for each group*** The target groups include the internal group of STOU personnel as well as the external groups of present students, alumni and other groups that can influence STOU's image such as community leaders, ideological leaders, politicians, government officials, and the press. The university's corporate communications should be planned to truly reach each of these groups.

**3.2) *Choose appropriate media for each target group*** News and information should be broadcast through both national and regional media to cover all parts of the country, and the frequency, timing and continuity of communications should be adjusted to be suitable for each target group, taking into consideration media convergence.

**3.3) *Increase and upgrade the content of news messages broadcast through every medium*** The news stories and communications should be updated to be fresh, new, and interesting and should meet the needs of the target audiences. STOU should present the kinds of information that the target groups want, such as all the courses it offers at different levels, all the services it offers, the fees and expenses, the method of applying and studying, the training courses offered, and news on university activities.

The university also needs to employ issue management tactics that will support its image-building strategies, setting priorities for which issues should be addressed and in what manner in order to best promote the image and identity that STOU wants to convey.

**3.4) *Expand perceptions of STOU*** Corporate communications should be employed to increase knowledge and understanding about STOU among external target groups such as the general public, personnel in private sector and government sector organizations, journalists, community leaders and politicians. Regular PR messages should include information about STOU's courses, study methods, educational services, policies, vision, and missions. The information should be broadcast in every type of media and should be more frequent than before.

STOU needs to build awareness of its corporate image in a way that is suitable for each target group, because the research results confirmed that awareness of the university was related to exposure to news about the university.

### **Recommendations for further research**

1) Tracking studies should be done at regular intervals to assess STOU's image at the time, especially after changes to the image-building policy and strategies.

2) More detailed studies should be made among the key groups of stakeholders so that the university can adjust its public relations strategies to solve problems and respond to the desires of target groups.

3) More studies should be made of the media use behavior of different target groups to find out what kinds of media they need and what kinds of information they want. For instance, STOU students probably have different needs from the general public, STOU alumni, or employers.

4) Following implementation of the re-branding and image building strategies, a follow-up study should be done of the results of STOU's communications and the target groups' use of new media.

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# Expanding the frontiers of engineering education in open and distance learning by an online laboratory platform

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## Abstract

Presently people have tendency to carry out higher education in distance mode due to their busy life. However, open and distance learning educational organizations encounter difficulties when delivering laboratory experiments in distance mode. This paper presents the developed online laboratory platform as a solution. It could be used to deliver laboratory experiments, specially using electronic components and instruments such as signal generator, oscilloscope, etc. Students are able to perform experimental tasks remotely utilizing real equipment and components. The system users have ability to view laboratory environment via camera which provides a real sense. The platform provide facilities to customize and rebuild the laboratory experiments according to requirements of the organization. It can be also utilized as a useful educational tool to acquire pre-experience before entering the real laboratory. The statistical analysis shows, no significant difference between the Face to Face Laboratory and Online Remote Laboratory experiment results within 95% confidence level. Therefore, the observations of Online Remote Laboratory has been acceptable to the Face to Face Laboratory observations. The system can enhance the existing open and distance learning system to share the resources in a flexible manner. This system will reduce difficulties that distance learning students encounter when participating in FFL sessions. On the other hand it will reduce the number of FFL sessions and will be helpful to working students. One of the main objective of ODL is to provide a learning environment to those who miss opportunities for higher education on account of employment, time, space, income and other obstacles. This system will help to achieve those objectives.

**Keywords:** online laboratory platform, online remote laboratory, open distance learning, laboratory experiments

## 1. Introduction

### 1.1 Open Distance Learning in the Open University of Sri Lanka

Open Distance Learning is an educational mode that employs pedagogical, technological and instructional design strategies to promote a blended learning environment to those who miss the opportunities for higher education on account of employment, time, space, income and other obstacles (The Open University of Sri Lanka, 2012a). Face to face laboratory sessions (FFL) in present ODL systems does not help very much to achieve above ODL objectives. When considering the Open University of Sri Lanka (OUSL) most of the laboratory facilities of the university are available only at the central campus, Colombo and not equipped in distance mode (The Open University of Sri Lanka, 2012b). Vidanapathirana, (2010) points out that *"At a time when the Colombo regional centre is already saturated in terms of physical space and facilities, the OUSL should extend its outreach to those areas and regions that remained under-served for years. Currently, about 58 percent of the OUSL's admissions are restricted to the Western Province which shares only 34 percent of the country's population. If one removes the 'language', 'management' and 'education' programmes, this will become an enormous 75 percent. This, fundamentally means, that we have failed to become an ODL institution in the true sense of the word"*.

According to Ismail, variables related to distance from the home to the institution were found influential on students drop-out from the Open University of Sri Lanka.(Ismail,1997). Therefore, students face many problems when attending FFL sessions, especially employees. If a student is unable to attend a relevant session, the university finds it pretty much impossible to rearrange a new session and that the students have to re-register. Hence, performing laboratory experiments is a major obstruction when delivering engineering and science curriculum in distance mode.

Therefore proposed to develop an Online Remote Laboratory (ORL) and it can offer real laboratory experiments via internet. Using this system, students able to do experiments in flexible times and also students in remote locations can perform laboratory experiments without coming to the central campus. The system also be capable of enhance the existing open and distance learning system to share the resources within and among universities in a flexible manner.

## **1.2 Remote Laboratory Systems**

Remote laboratories can be define as network-based laboratories where the user and the real laboratory equipment are geographically separated and where telecommunication technologies are used to give users access to laboratory equipment (Khamis *et al.*, 2003).

The linear cascade laboratory facility is a remote laboratory at Department of Energy Technology at Royal Institute of Technology (KTH), Sweden. Key features of this remote laboratory are live streaming video which allows direct observation of experiment, remote control and data acquisition, instant feedback and suggestions during laboratory operation, online communication and online documentation. (Navarathna *et al.*,2003). Drawbacks of the KTH laboratory are, can not customize and specially design for a specific experiment only, laboratory demonstrator must be present at the real laboratory when performing experiment, because the demonstrator should be present at the laboratory, it not available on 24 hours.

Most of the present remote laboratories are used expensive data acquisition cards and devices.(PR2 Remote Lab,2012).Developing and installation cost of existing laboratories are high. However this ORL system not used expensive data acquisition devices and developing cost is very low. ORL system not used special instrument and existing instruments available in the OUSL laboratories are used. Therefore this remote laboratory system is very much suitable for the universities/educational institute of the developing countries.

## **2 Online Remote Laboratory**

### **2.1 ORL System Architecture**

The system architecture of the ORL system illustrated in figure 2.1. Experiment boards are developed according to relevant experiment with allocating connections for relevant input, output and test points.

The connection points were connected to the connection array which controlled by a microcontroller (MCU). All measuring equipments and instrument were connected to experiment boards via the connection array and also connected to the server using RS232,USB or GPIB interfaces. MCU was connected to server via USB (Universal Serial Bus) or RS232 communication bus. (Predko,2008).

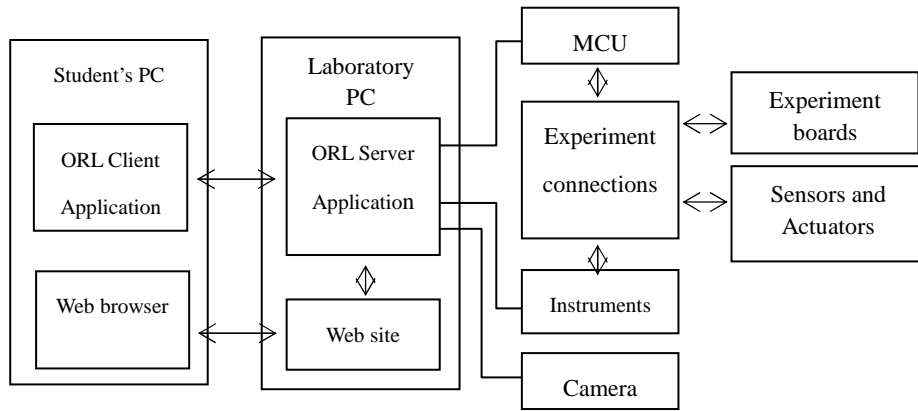


Figure 2.1 - The ORL system architecture

The client application transmits data to the server application and vice-versa using TCP/IP protocol according to the user's interaction with the client application.(Andrew,2009).The MCU make connections to the experiment boards according to the given commands by ORL server software. The use of MCU in this system provides for easy customizability and future expandability not only to change connections, also to control actuators.

## 2.2 Instrument Control

Most of the modern instruments are compatible with Standard Commands for Programmable Instrument (SCPI) standard.(IVIfoundation,2012). The SCPI specification expanded the IEEE 488.2 common command set by defining a single, comprehensive command set suitable for all instruments. Therefore, when connect an oscilloscope to the ORL system, any SCPI compatible oscilloscope can be connected without changing the system.

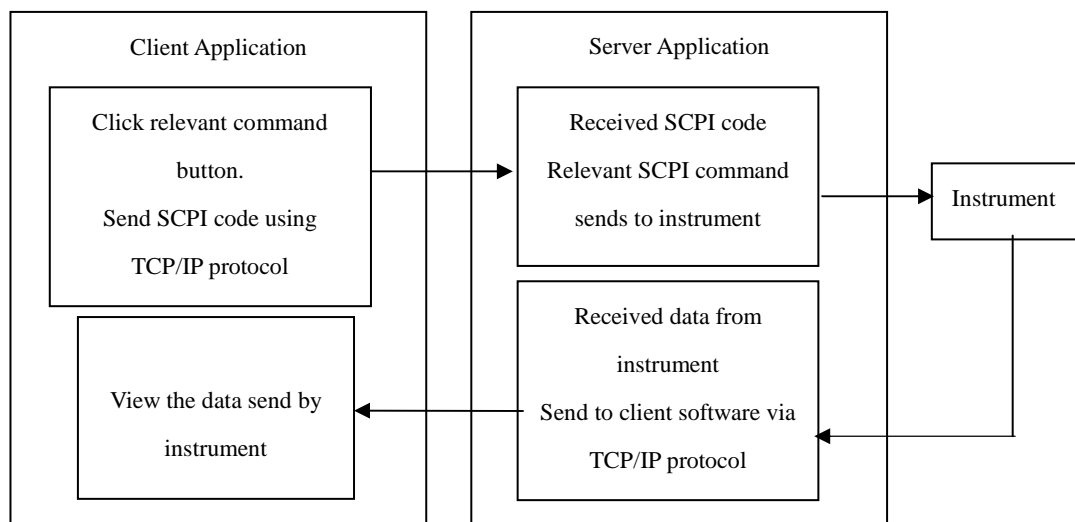


Figure 2.2 - Instrument control architecture of the ORL system



## 2.3 Software Design

Software was used to communicate between server (laboratory) PC, client (student) PC, MCU and instruments. Students are able to log on to the ORL website by accessing the URL and can download the ORL client software. That software was used to perform the experiments remotely and the commands given by the students were passed to the ORL server via TCP/IP protocol. Students can download learning materials and can view the laboratory through a camera to get a feeling of the real laboratory environment.

## 2.4 Prototype ORL Experiment

The bipolar junction transistor amplifier experiment was selected as the prototype ORL experiment.

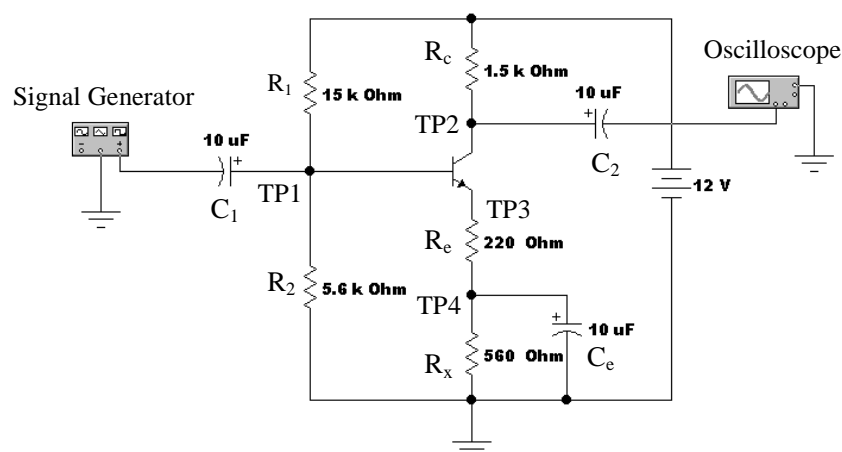


Figure 2.3 - Prototype ORL Experiment

According to the selected experiment, given tasks are;

- Measure voltages at the test points TP1, TP2, TP3, TP4 as shown in figure 2.3.
- Provide specific input signals from signal generator and monitor input/output signals by dual channel oscilloscope and find the AC gain.
- Measure the maximum output swing.
- Monitor the output voltage and test point voltages by disconnecting  $C_e$  capacitor.

## 2.5 ORL Client Application

Prototype ORL client application illustrated in figure 2.4. Users able to change the instrument connections to relevant test points and also can change input signal and measure output signal etc.

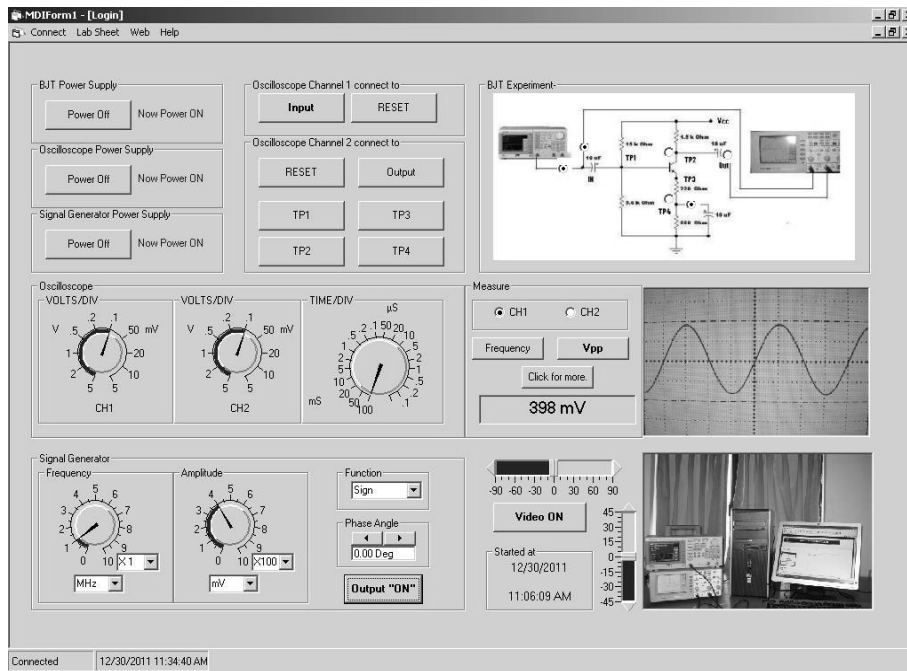


Figure 2.4 - Online Remote Lab client application

Students have facility to booking an ORL session via ORL client software as shown in figure 2.5.

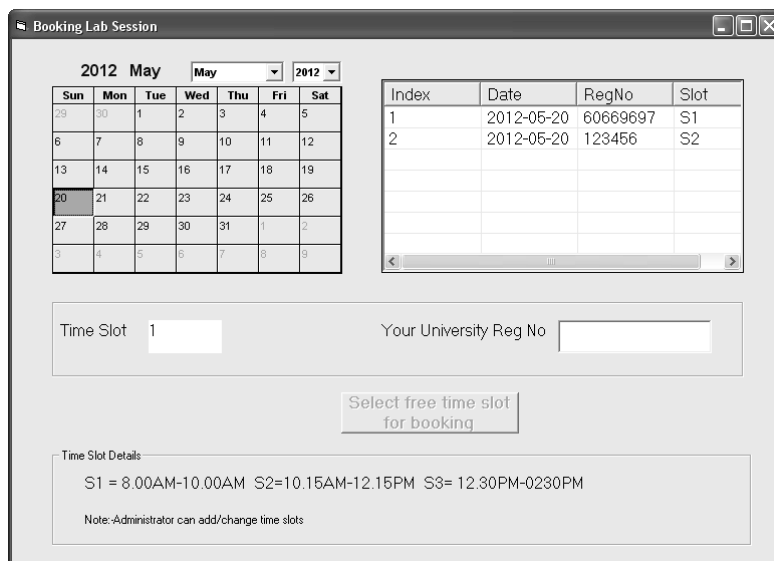


Figure 2.5 – ORL session booking dialog box

Student has opportunity to save the observed result and it saved on the server. Finally the system automatically generate observation sheet according to the saved data and send to the lecturer e-mail with copy to the student's email as shown in figure 2.6

From: OnlineRemoteLab OUSL [mailto:ouslori@gmail.com]  
 Sent: 26 March 2012 15:06  
 To: rasika.ou@gmail.com  
 Cc: rasikanandana@gmail.com  
 Subject: Online Remote Lab Observations Sheet - RegNo: 60669697 2012-03-26

**Online Remote Lab - MEX 3272 BJT Amplifier Experiment  
 Observation Sheet**

Input_Volt	Input_Frequency	Ce_Connected?	Test_Point	Channel	Variable	Value
0.2V	5kHz	Y	IP	CH1	Vpp	0.21V
0.2V	5kHz	Y	OP	CH2	Vpp	0.81V
0.5V	5kHz	Y	OP	CH2	Vpp	1.86V
1.0V	5kHz	Y	OP	CH2	Vpp	3.84V
1.5V	5kHz	Y	OP	CH2	Vpp	5.62V
2.7V	5kHz	Y	TP2	CH2	Vpp	8.59V

2.0V	5kHz	Y	OP	CH2	Vpp	7.12V
2.5V	5kHz	Y	OP	CH2	Vpp	8.56V
1.0V	5kHz	Y	TP1	CH2	Vrms	3.28V
1.0V	5kHz	Y	TP2	CH2	Vrms	8.18V
1.0V	5kHz	Y	TP3	CH2	Vrms	2.63V
1.0V	5kHz	Y	TP4	CH2	Vrms	1.70V
1.0V	5kHz	Y	IP	CH1	Frequency	5.11kHz
1.0V	5kHz	Y	OP	CH2	Frequency	5.14kHz
0.5V	5kHz	N	OP	CH2	Vpp	1.20V
1.0V	5kHz	N	OP	CH2	Vpp	1.80V

Name: W.A.Rasika Nandana  
 Reg No: 60669697  
 Email: [rasikanandana@gmail.com](mailto:rasikanandana@gmail.com)

This is automatically generated email by ORL system - <http://ouslori.m3cs.net>

Figure 2.6 – The generated observation sheet email

### 3. System Validation and Limitations

#### 3.1 Communication Validation

The ORL server and client applications exchange data between each other. Theoretical transmission time to pass a command to the ORL system is calculated as 0.00923s.

According to McGovern(1990), A maximum time delay of 1s is usually taken as a reference of operability in remote control systems. The 0.00923s is below than 1s and this delay is acceptable. Time between two event can be controlled by ORL software and not allow to give next command before first one is processed. Therefore maximum amount of data that can be transmitted in one occasion is calculated as 12.8kB.

However that acceptable time delay can be obtained without considering a video transmission of laboratory camera and it can be done via separate network connection to avoid the impact to the command transmission.

According to that test result obtained when ORL server was running while receiving and processing user commands and oscilloscope waveform transmission, 11 kB data is averagely transmitted within one second. Therefore that amount of data can be transmitted within acceptable range.

The average upload speed was observed as 160kbps when ORL server transmitted experiment data with oscilloscope waveform, and average upload speed was observed as 440kbps when transmitting camera video.

The client side performs averagely 9kB per second data transmission. It within acceptable range as calculated previously. The client network utilization observed as 42% when the client use low speed (115kbps) data communication link. More than that data communication speed is available most of the remote locations of Sri Lanka and therefore students in remote locations will not face much problem regarding communication speed.

Single SCPI command averagely has 30 bytes (GW Instek, 2012). If both command and response used 100 bytes then transmission time will be 27.7ms. Therefore this communication speed is acceptable.

According to the calculations and experimental values, selected network connections are within acceptable range and if server network connection replace with high bandwidth connection, the transmission performances of the ORL system can enhance.

### 3.2 Experimental Observations Validation

The BJT amplifier experiment was conducted by using both FFL and ORL methods and compare observed results. This comparison helps to ratification of the ORL method.

Selected waveform from a FFL observation is illustrated in figure 3.1(a) and same observation by ORL is illustrated in figure 3.1(b).

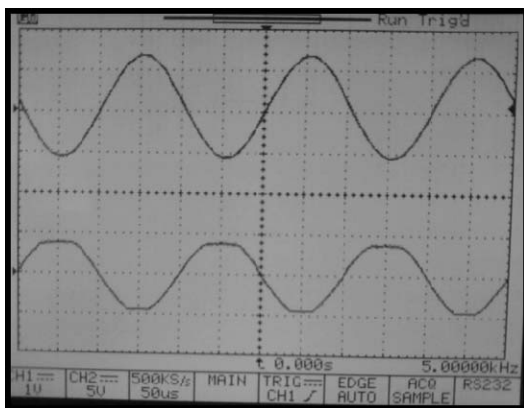


Figure 3.1(a)FFL

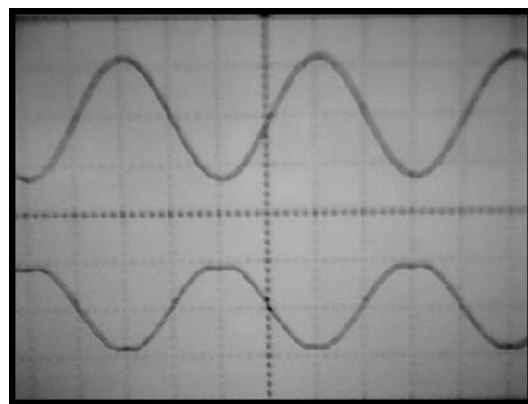


Figure 3.1(b)ORL

Figure 3.1 - FFL and ORL observed waveforms for input 5kHz, 2.5 V

The observation results were obtained by conducting 10 experiments using the FFL and 10 experiments using the ORL system.

Statistical analysis method named t-test used for comparison of population means of FFL and ORL results in order to clarify whether there is any significant difference between the two population means. (Chandan,2009). FFL experiment results are mentioned as sample 1 and ORL experiment results as sample 2.

The null hypothesis is denoted as  $H_0$  and states that there is no significant difference between the FFL and ORL experiment results as equation 3.1. The alternate hypothesis states as equation 3.2.

$$H_0 : \mu_1 = \mu_2 \dots\dots\dots 3.1$$

$$H_1 : \mu_1 \neq \mu_2 \dots\dots\dots 3.2$$

The t-score for observations of the test point 1 was calculated as below.

$$\begin{aligned} \bar{x}_1 &= 3.313 & \bar{x}_2 &= 3.254 \\ s_1 &= \sqrt{\frac{0.03141}{10-1}} = 0.05908 & s_2 &= \sqrt{\frac{0.05804}{10-1}} = 0.08030 \\ S_p^2 &= \frac{(10-1)0.05908^2 + (10-1)0.08030^2}{(10+10-2)} = 0.004969 \\ t &= \frac{3.313-3.254}{\sqrt{0.004969(\frac{1}{10} + \frac{1}{10})}} = 1.871471 \end{aligned}$$

The critical t-score from the t-statistic table for a two tailed test with  $\alpha =0.05$ (95% confidence) and  $df=(n_1 + n_1 -2) =18$  is given as 2.101.

Since calculated value of  $t = 1.871471$  is smaller than the critical t value of 2.101, the null hypothesis is accepted.

According to the above calculations, there is no significant different between the FFL and ORL experiment results in respect to the test point 1. Table 3.1 and 3.2 illustrate t-score values for all experimental results.

Table 3.1 – Statistical analysis of FFL and ORL test point results

	Test Point	Standard deviation of the FFL results	Standard deviation of the ORL results	t-score
1	TP1	0.05908	0.08030	1.871471
2	TP2	0.08230	0.10472	0.166201
3	TP3	0.06132	0.08030	1.940450
4	TP4	0.06110	0.07616	-0.323880

Table 3.2 – Statistical analysis of FFL and ORL output results

	Input(Vpp)	t-score (with C <sub>e</sub> Capacitor )	t-score (without C <sub>e</sub> Capacitor )
1	0.2	0.214491	-1.912980
2	0.5	-1.447180	-1.716480
3	1.0	0.219429	-1.978490
4	1.5	1.385274	1.625637
5	2.0	-0.563470	-0.641890
6	2.5	-1.440990	1.211154
7	2.7	-1.690740	-1.224380

According to the table 3.1 and table 3.2, the modulus numerical value of all calculated t-score values are less than the critical t-score value of 2.101 obtained from the t-statistic table(Chandan,2009). Therefore, the null hypothesis was accepted. The null hypothesis states that there is no significant difference between the FFL and ORL experiment results within 95% confidence level.

#### 4. Conclusions and Future Works

The statistical analysis mentioned in the previous chapter shows, there is no significant difference between the FFL and ORL experiment results within 95% confidence level. Therefore, the observations of ORL have been acceptable to the FFL observations. Those results were not obtained from virtual or simulation experiments. They were real observations obtained from real laboratory equipments.

All components used for the prototype ORL experiment were real and not ideal components. Temperature, noises and all other disturbances also affected the ORL experiment as in FFL. This was mainly because the observations were taken from same working environment in both methods. Therefore, ORL system is suitable to be used as alternative method to offer laboratory sessions especially in ODL.

However, there have been limitations in ORL system than FFL when considering educational psychology. The ORL system did not improve hands on skills of the students and due to that, FFL cannot be completely replaced by the ORL system. Hands on experience such as connecting components and familiarization of equipments have to be gained through FFL conducted at preliminary levels and, ORL is most suitable to offer experiments at intermediate levels.

In future, this system can be further enhanced by considering psychological aspect of learning. Presently the ORL system consist a video camera to give real sense to students, by showing the laboratory environment. Therefore the students are aware that it is not virtual but real. In addition to video transmission, some other methodologies such as Artificial Intelligence (AI) methodologies (AI teacher, agent, expert system), audio visual components, can be included to ORL in future by considering educational psychology.

This system can be utilized as a framework to distribute laboratory experiments in ODL mode. It has a feasibility to implement with customizable facility and then system administrator/lecturer will able to distribute many experiments using a single system by changing input/output connections according to relevant tasks.

The prototype ORL experiment is an electronic one and does not include any mobility. In future, this system can be developed to offer experiments with mobility. The ORL is capable in controlling actuators and the initial testing was done with a stepper motor. The stepper motor was controlled using the present ORL system via internet. It was successful. Therefore, this system has a possibility to conduct experiments, which require moving capabilities (mechanical experiment, chemistry experiment etc.) using actuators (motors, pneumatic components etc.).

The ORL system is very much suitable for ODL institutes. The difficulties that distance learning students encountered, when participating in FFL sessions, will reduce by this system. On the other hand it will reduce the number of FFL sessions and then it will be

helpful to working students. One of the main objectives of ODL is to provide a learning environment to those who miss the opportunities for higher education on account of employment, time, space, income and other obstacles. This system will help to achieve those objectives.

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# Analysis and application of social software in online interactive teaching

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**Abstract:** While QQ and micro-blog are in the ascendant, the meteoric rise of Wechat has provided another new power for online interactive teaching. With the popularity of WiFi and intelligent mobile phones, social software has been widely applied in various fields of the society by means of the superior transmission mode of node-to-node and node-to-surface. In this situation, some colleges of online education and training institutions have also started to open the public account of Wechat in the service of teaching. However, the use of Social software in online interactive teaching is still in an initial stage of exploration, which needs further study on how to put its function into full and proper use in the teaching process. For this reason, we have employed an action research method, through the teaching experiment, combining with the characteristics of Social software, to try a variety of complementary and interactive designs of online teaching, with in-depth excavation of the function of mobile teaching service, and establish multi-dimension channels for effective communication between teachers and students, and between students and students as well. Therefore, we could strengthen the emotional support and improve the quality of teaching. It has been found, at the same time, that Wechat, QQ, micro-blog and other social media tools play very important roles in assisting and supporting online interactive teaching to a different extent. As Wechat and QQ are homologous, QQ is widely popular with people and applied in China's inland regions, whereas, Wechat and QQ has more advantageous application functions of mobile phone, which could lead learners to accept its teaching service relatively easier, but the application of other social networking tools can also be included in their learning.

**Key words:** Social software, online interaction, teaching design, mobile teaching service

Interaction is a prerequisite for online learning. The continuously developed and perfect social software, which is free of charge, has strong functions of interactive collaboration, not only deeply affecting people's life style, but also providing powerful booster for online interactive teaching and learning.

## 1. Problems

Today, the network has become a new mode of organization structure, and geographical position is no longer important for learning(Micheal Grahame Moore,2010,p. 40), but whether online learning will take place and how to make effective online learning have always been a topic people focus on.

Professor Ye Lan(2007) believes that educational activities in human beings originate from communication, in a sense, education is a kind of special exchange in human beings . Foreign researchers(Piaget. J.1970) also believe that learning is not a passive process, but an active and positive construction process. And this process occurs and is completed in the interaction between the learners and the environment. Therefore, dialogue is the essence of teaching, whereas, teaching is a process with common building sense on the basis of the dialogue between teachers and students in the interaction and exchanges(Chen Weidong ,2011, p. 6). The "random" of "instant interaction" and "diversity" of interactive forms are likely to be more suitable and urgently needed for teachers and learners and learners themselves, who are separated from remote space-time.

Actually, there have been many researchers who focused on the online learning behavior of learners in the earlier time. Their main researches are concerned about specific learners' specific learning behavior based on specific learning platform, such as access, post, communication, and depth of exchange, etc. Among which a lot of studies are about learners' real-time (synchronous) and non-real-time (asynchronous) interaction, but empirical studies show that the degree of active and in-depth interaction is worrying.

The first problem is "real-time interaction (synchronous)" and "non-real-time interaction (asynchronous)" used at the same time do not really result in "random" of "instant interaction" or "diversity".

In the teaching practice, we also found that through BBS "real-time (synchronous)" and "non real-time (asynchronous)" could not cover all the interaction between learners and teachers and their peers. The main obstacles are as follows:

(1) In the BBS, one cannot find whether there are any other people online besides "himself / herself". And in the BBS, "I" am the only one existing, thus, this kind of loneliness can easily cause learners not to want to ask questions or have no idea about what question to ask.

(2) Real-time (synchronous) interaction in the BBS is within the scheduled time of online interaction at the same time, which cannot follow each learner's schedule, especially for those on-the-job adult learners.

(3) Non real-time (asynchronous) interaction in the BBS cannot ensure the problem to be timely responded, because it does not have the function of reminding with a new post anytime or anywhere. In this way, it is difficult to sustain the dialogue between teachers and learners as well as between learners and their peers.

(4) The BBS lacks the function of forming groups. Therefore, learners' cooperative activities in groups are difficult to effectively carry out. Firstly, it is hard to have the intuitive concept of "team". Secondly, the process of team collaboration is in disorder and dispersion, hence, the group aggregation and cooperation are difficult to guide.

(5) The function of BBS is usually single, without audio-visual or voice communicative function.

(6) Because of the curing and monotonous BBS interface, it does not conform to the dialogue habits in daily life, which may be one of the reasons influencing the effect

of interaction.

The second problem is whether there is a tool which has the function of "instant interaction".

Fortunately, due to social software, especially the emergence of the instant communication software, coupled with the popularity of intelligent mobile phones and WIFI, "random" of "instant interaction" and "diversity" have come true from vision. However, at present, each mainstream learning platform and customized campus platform nearly has no function of "instant interaction", so, how to combine a variety of social software with online teaching design based on learning platform with complementary interaction is a problem we need to pay attention to and study seriously.

The third problem is which social software is more suitable and more effective for online interactive teaching.

Jiangsu Open University has recruited students for two terms since 2013, and 68 courses have been issued. For the students in the first term, we actively explored how to use assisted learning platform, such as WIKI, Blog, QQ, and QQ group to carry out interactive and collaborative teaching and learning, but the use of WIKI and Blog is not ideal. However, in a feedback survey at the end of the course, 70.7% of the learners thought the requirement for the use of WIKI technology was a little high; 68.3% of the learners considered that the platform function was unstable. As for the auxiliary expanding resources provided by Blog, only 23.3% of the learners have browsed through. The vast majority of the learners just have the idea that they can only complete their studies in the circumstances of learning while working as well as having old parents and children to attend, which is a comfort to them. On the contrary, for the use of QQ group, 89.1% of the learners have attended each course; 54.5% of the learners are very active in the group. Although the data is only confined to the learners of corresponding courses, it explains, to a certain extent, the necessity of how to choose and use social software properly.

## **2. About Social Software**

Nowadays, we can learn the major news at home and abroad and accept all kinds of knowledge through network without going out of the house. We can also exchange and communicate with others, deliver all kinds of messages, comment on our own life experiences and events and so forth by E-mail, QQ, blog, microblog, WIKI, Wechat and cloud plate. So, it is believed that this is an era of social software(Yao Hongzhi, 2010, p. 42).

Social software, a general concept, mainly refers to some network software tools maintaining social relations between people, by using Web technologies(Huang Xin,2011. p.62). It chiefly includes the SNS software (Facebook, Kaixin Web, etc.), instant communication software (QQ, Wechat, etc.), personal publication and collective software (blogs, WIKI, etc.), and computer collaborative software, etc. According to the above mentioned, following the survey results of the learners using teaching-aided social software, this paper focuses on the application of instant communication software. There is a natural connection between the strong function of interaction and

collaboration and online interactive teaching.

## **2.1 Development of instant communication software**

Instant communication software is the one to realize the online chat and exchange by means of instant communication technology, allowing two or more people to use Internet to deliver instant transfer texts, images, voice and even audio-visual exchanges. You can know whether the person you want to have a talk with is online through the instant messaging function. If online, you can communicate with him/her immediately; if not, you can leave a message to him/her. Instant communication is more real-time than sending emails, more intuitive and economic than calling. Undoubtedly, it is the most convenient way of communication during the network times.

With the development of mobile Internet and the massive popularity of intelligent mobile phones, the Internet instant communication is expanding toward mobility. At present, a few important international instant communication providers have offered the business access to the Internet instant communication via mobile phones. Thus, the mobile users can send and receive messages to and from those corresponding ones or computers with software installed on customer terminals through mobile phones.

There are a lot of popular instant messaging softwares now, QQ and Wechat are perhaps the most influential and most widely used ones with most domestic users.

## **2. 2. Analysis of the function of QQ and Wechat**

QQ and Wechat are Tencent's instant messaging products, which can be seen as a Tencent's most successful application of Internet and mobile Internet. If QQ is considered as a big data platform of Tencent PC, then Wechat is a big data open platform of Tencent mobile terminal.

"The interim results in the second quarter of 2014" published in Tencent's website show that the active account number of QQ has reached 829 million, while that of intelligent terminals reached 521 million. The highest online account number has reached 206 million at the same time(Tencent,2014) . QQ and QQ email are the primary means for the Chinese Internet users to communicate on line.

Why can QQ attract so many users? The first reason is that it has strong and perfect function, such as friend management, establishment and discussion groups, messaging, file transfer, multiplayer video and voice conversation, information sharing, information processing, remote assistance and micro cloud storage, etc. The second is that interface design is very reasonable, moreover, the user operation is very simple with zero foundation, which is vital important for on-the-job adult learners who are learning via network.

Wechat is a mobile communications software Tencent company launched in early 2011. It can send voice messages, video, images and text through mobile network, provide single or group chat, and find nearby people according to the geographical position as well. It has broken the boundaries of traditional telecom communications and mobile Internet, achieved information dissemination beyond telecommunication

operators, and system platform, and brought new changes in the aspects of user relationship, communication form and mode of transmission, creating a new mobile communication experience. Wechat is very popular with the public because the software itself is completely free of charge, moreover, it is more flexible and convenient with intelligence and rate saving. "The interim results in the second quarter of 2014" published in Tencent's website show that the monthly active account number of combined micro-channel and WeChat has reached 438 million (WeChat is a micro-channel in English; it is used by overseas), and increased 57% compared with that of the same period last year(Tencent,2014). Therefore, the growth rate is much higher than that of the QQ account and the account of QQ intelligent terminal during the same period. It means there will be a lot of climbing for the Wechat number in the future.

The Wechat function has several prominent features. One is to set up its own small circle with one-to-one conversation, voice, sending pictures and videos, etc. Compared with micro-blog, on which fans can pay close attention to all users' information, it attaches more importance to the microcosmic individuals and their feelings; the other is its "to sweep" function has been greatly enhanced, which has become the super entrance for online free conversion; the third is a public account, providing quality resources and information sharing and dissemination.

### **3. A Case of Online Interactive Teaching Practice about Selective Use of Social Software**

On the basis of the learners' result feedback in the first term, we selected appropriate courses and made appropriate adjustments for the later learners.

#### **3.1 QQ is used as an important auxiliary tool for online interactive teaching**

We randomly observed 176 learners and found 98.3% of them have QQ accounts, three having no QQ accounts, among whom a 46-year-old learner does not always surf the Internet at ordinary times; another is due to moving without broadband at home, but working in construction site, with no network there; the third is a pregnant, who has forgotten her account number. There are 169 learners, up to 96%, who simultaneously installed the mobile QQ. So establishing a QQ group of curriculum and inviting learners in class to join in, with the help of QQ's powerful and convenient interaction function to build a closely effective contact between learners and teachers becomes the first addition to the online interactive teaching.

#### **3.2 Applying related Wechat function to assist information transmission and resource sharing**

Compared with QQ in the learners' popularity, the number of Wechat users is obviously smaller. The random survey to the above learners shows that only 19.6% used Wechat at the beginning, but in the learning process, learners using Wechat are on the rise.

### **3.3 Designing elaborate strategies of "QQ + Wechat + platform" interactive teaching**

Interaction is not an end in itself, but an ultimate goal of interaction in the process of learning through a variety of mutual exchange and interaction to stimulate learners' learning motivation, to affect their learning behavior, thus realizing the teaching objectives.

#### **3.3.1 Making full use of QQ's function of multiplayer video conversation to explain at any time and make the distance closer**

Multiplayer video conversation in QQ can be carried out in a one-to-one situation, but also applicable to a one-to-many and multiplayer case in a group environment. With a simple camera and microphone, good sharpness, smooth sound level of synchronization can be achieved. At the beginning of the course learning, learners are less familiar with contents, requirements and layout of the course platform than they are with the various functions of QQ. So, it is necessary to inform learners, at the first time through QQ group, of the time and theme of the audio-visual activities in groups, and of the information that problems of the course will be explained through video. At that time, one thing should be paid particular attention to, that is, some learners may have different opinions about the learning time. In this case, the teacher must timely give feedback in a QQ group, asking them what time is appropriate. If it is basically determined, the teacher should consult with other learners once again within the group; if there is no objection, the time can be decided. However, if learners still have objections, the teacher needs to adjust it again. In fact, this part is very important, because it delivers a teacher's serious attitude towards every learner equally. The teacher's simple act can refract his/her sincerity and warmth in the case of learners and teachers separation in remote education. It is certain that there are still learners who feel time is not appropriate, in this situation, the teacher should explicitly inform them that activities conducted can be recorded simultaneously via recorded frequency software, and will be sent to the learning platform as well as the group files immediately when they are completed, and that they are welcomed to have their problems solved at any of their convenient time.

It is meaningful and very convenient to have discussions with many people through Discussion Groups in addition to teachers' organization of video teaching activities. Video can help learners know each other; the interface of Discussion Groups allows learners to realize easily that their team members are online at the same time, and anyone's speech or reply can be perceived for the first time. However, the teacher should be cautious about intervention when taking part in the discussion. He /she could only play the role of helper and guide to give topics and guide speeches, but avoid the phenomenon that the person of greater importance is relegated to the background.

#### **3.3.2 Making full use of QQ and Wechat's functions of one-to-one conversation and file transfer to carry out the individual tutorials**

One-to-one interaction can meet different learners' needs most, especially the

solution to a certain particular problem about the curriculum. However, neither teachers nor learners can always have one-to-one communication or learn online with unlimited time because of work and life pressure. And functions of free chat environment, real-time message, information sending and receiving and so on provided respectively by QQ and Wechat under the circumstances of PC terminals and mobile terminals, are very suitable for both teachers and learners to establish one-to-one communicative environment anytime in the constant message exchange without special appointments or arrangements, especially suitable for the timely and effective feedback of learner's assignment.

It is a fact that quite a number of learners lack learning motivation, which is unable to avoid (Zhang Xuan,2014,p.14). These learners do not treat their homework seriously, but resist to a great degree, because they do not know that homework is a kind of evaluation to review whether they have grasped the corresponding knowledge and skills.

For the learners who have resistance behavior, the teacher needs quite a long time in advance to remind them of completing their learning tasks every time in addition to giving them clear and specific ones as well as deadline for homework. If there is any delay for homework, the teacher should ask learner individuals to submit theirs on time. When learners give a reply that they are going to finish their homework, the teacher ought to inform them in advance that they might encounter difficulties when completing their tasks and the existing problems as well. And these problems need, particularly and appropriately, to be written into text or drawn in pictures, then directly sent to learners.

For those who do not learn very hard, the teacher needs to make a feedback after they submit their tasks within the shortest time. The teacher should first note good parts they have completed in their homework, and also indicate the existing problems, then offer advice for improvement. Performance evaluation must not just base on scores, but the learners should be surely informed that if they want to have better results, they ought to follow the suggestions in accordance with the amendments and submit again before the appointed time. Although the detailed annotation assignment can be uploaded to the platform as a feedback, the learners will not care about it with positive attitude, so, the teacher must send it to them through QQ or Wechat, encouraging them to read it again so as to improve themselves.

### **3.3.3 Making full use of Wechat's "to sweep" function to guide learners' mobile learning**

On-the-job adult learners are really facing a big problem —no sufficient learning time. Since Wechat supports two-dimensional code, bar code and other scanning, relevant information can be easily scanned and recorded anytime and anywhere. In order to help the learners to learn audio-visual courses in their discrete time, we apply two-dimensional code and Wechat's "to sweep" function to let every learner watch each section of the video to learn audio-visual courses via the mobile phones at any time. Although there are not enough learners using Wechat now, the function can provide another option for the interaction between learners and resources.



### **3.3.4 Making full use of Wechat's public accounts to expand the reading contents**

Public account is actually a kind of delivery service. We have now two courses through Wechat public platform, which have created public accounts, trying to release, share and deliver important information and developing resources of the curriculum. There have been very good responses among learners with the Wechat accounts though the degree of attention is also needed to observe.

## **4. Results and Reflection**

### **4.1 Results of the period**

Applying social software to aid online interactive teaching practice will be adjusted and amended in the continuous teaching process. Based on the current situation, we find that:

(1) The application of QQ and Wechat has really promoted the interaction between teachers and students and among students themselves online effectively. Through the observation of a class of 33 learners (including teachers) having the Learning Guide course, we find, in eight-week learning time, records of dialogue in groups have reached thousands with 70,000 words, just as the suffix automatically given by means of the active degree of different users in QQ shows, "legend" 1 person (teacher), "talker" 6 people, "active" 11, "nitpick" 7, "bubble" 4, "diving" 4. In the learners' feedback, 89% use words to express their great satisfaction with their teachers.

(2) The right application of software is the best application. Compared with other software, QQ, though less fresh or fashionable than blogs, micro-blog, WIKI, Wechat, etc., is very suitable for our learners because of its powerful function, simple operation and low entry barriers.

(3) Suitable social software is not merely limited to one kind. For instance, QQ and Wechat are respectively applicable on different terminals, complement each other with remarkable effect. In the above mentioned Learning Guide course, the teacher can not only apply QQ to explain to students the learning materials and correct their homework respectively with its popularity and bigger document storage and transmission function, but also deliver information and share videos to and with learners because of the convenience of Wechat in mobile phones

### **4.2 Reflection**

It is certain that some problems need rethinking and attention through the teaching practice of one stage.

(1) As QQ and Wechat are not only a single instant messaging software, they have already had a very powerful integrated information platform. The application of QQ and Wechat in the interactive teaching and learning will distract learners' attention and time from the learning platform, then they will ignore the role of learning platform.

(2) Random and diversity of real-time interaction inevitably mean teachers repetition of their "one-to-one" work, continuous commitment to service, which of course increases their work amount severely. It means the learners every teacher serves

must be strictly controlled in a reasonable scope, and it also challenges the existing system and the method used for examination and assessment of teachers' work.

(3) Learners' uneven information literacy, certain requirements of the tool for technical content, and a common phenomenon of fear and difficulty among themselves may also reflect a kind of market demand.

(4) As far as practitioners are concerned, online interactive teaching is still a very new teaching business; the introduction of social software needs more professional teachers, and elaborate online teaching design as well, but it may need continuous learning and practice.

Finally, there is one point to illustrate, QQ and Wechat themselves may not directly improve and optimize the learning resources, but their good experience, a variety of interactive function at any time, simple and convenient operation will provide learners with more learning options and more interactive methods, and also provide teachers with greater space for designing online interactive teaching. So, we believe that social software will have a wide application prospect in the field of remote education.

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# **The impact of online tutorials on students' ability to compose journalistic writing**

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## **Abstract**

Distance education practices often encounter difficulties in enhancing students' practical skills which are available in face-to-face mode. However, these skills are required to increase the quality of the graduates.

The students of the Department of Communication are required to achieve advanced competencies; one of which is to handle complex skills in order to develop a good quality of journalistic writings. The Department of Communication at the Faculty of Social and Political Sciences of Universitas Terbuka attempts to address those issues by promoting "e-journalistic exercises". This program is developed for the subject of The Techniques of News Writing. This program utilizes moodle, an Open Source Course Management System (CMS), to facilitate students to be actively engaged in journalistic exercises with the tutor as well as with their fellow students. Through this tutorial, students are taught the skills of how to develop certain kinds of journalistic writings, such as features writing.

Having been run for two years, this program has created challenges as well as opportunities to be improved. This paper discusses and explores those challenges and barriers and seeks to find the best possible solution for adopting the "e-journalistic exercises" which is able to equip students with advanced journalistic skills accordingly.

**Keywords:** distance education, open source course, practical skills, e-journalistic exercises, online learning

## *Background*

Study in open universities offers a unique experience for their students. The independency of students is the main key in completing the program successfully. Besides that, the learning support services also become an important aspect that should be provided in the learning process.

The quality of learning support services for students, both administratively and academically, plays an important role. The quality of learning support services are greatly affecting students' understanding of the program that they will take, students' wishes to enroll, students' persistence, and also the completion of their studies (Simonson, et.al, 2012: 322).

Furthermore, Simonson also states that the distance program students have a number of expectations of the institutions; they will receive the same services as such services are obtained by students face to face; as much as possible the information they need they can get through online media; they can get the service information that is easily accessible (online), and there are certain units that can also provide the information they need (face to face); all of the services they need will be available for

self-service and online; they expect services that are personal, not public; and they hope to get the right answers to their questions in a quick time.

The process of delivery of knowledge in distance education based basically on the printed learning material. However, as stated before, there is a very important role of learning support services in the learning process. In achieving specific skill through distance education, special effort should be conducted, one of which is by utilizing online-learning.

### *Learning Support Services in Distance Education*

All of the expectations of students in distance education must be accommodated by the institution. To meet the expectations of the students, the Western Cooperative for Educational Telecommunications (WCET) in 2010 developed guidelines for identifying areas of student services in the context of online learning which is referred to as the "Web of Student Services for Online Learners" (Simonson, et.al., 2012: 323). These models classify services to students in distance education into five categories; administrative core, academic services suite, communications suite, personal services suite, and student communities suites.

From the model we can conclude that tutorials is one of the learning support services to be provided by distance education institutions under the category of academic services suite in addition to other services, such as libraries, bookstores, academic counseling, and technical support.

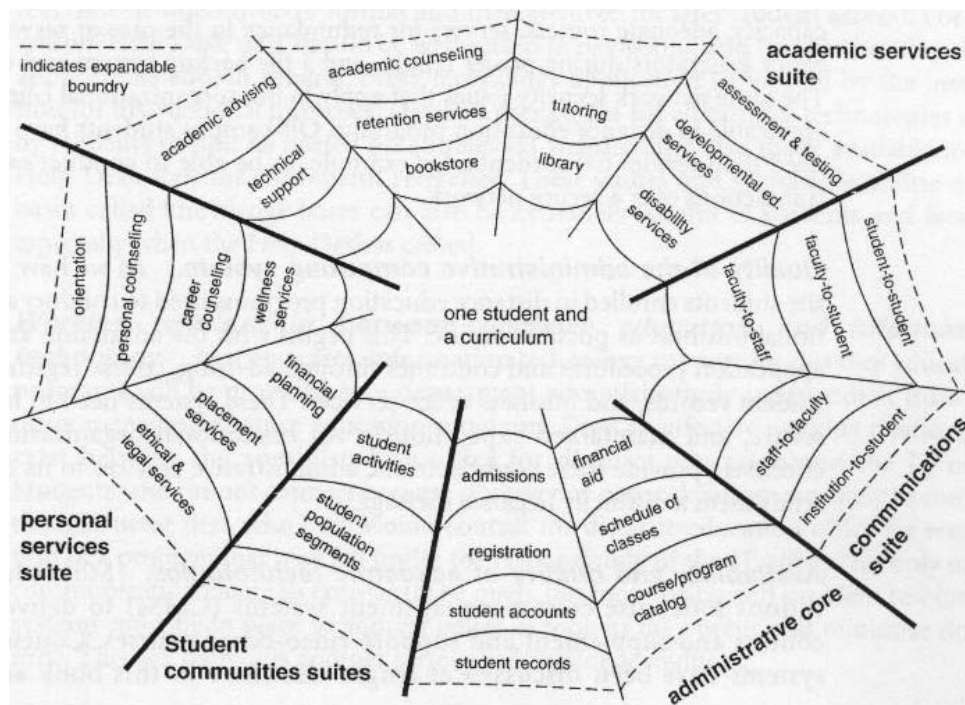


Figure 1. "Web of Student Services for Online Learners" (Western Cooperative for educational Telecommunications (WCET) in Simonson, 2012: 323)

As a higher education institution that employs a distance learning system, Universitas Terbuka (UT), Indonesia, always strives to provide learning support

services that use information and communication technology in optimum way. Since its establishment in 1984, UT has provided learning support services in a variety of modes; face-to-face tutorial, written tutorial, radio-based tutorial, television-based tutorial, teleconference-based tutorial, and also online tutorial. However, the quality of those tutorials should be improved and maintained.

#### *Why Online Learning?*

The rapid development of information and communication technology in Indonesia gives a huge impact on the habits of most Indonesian, included in the style of searching for information. The initiation of looking for information through Internet for most of Indonesians, eventually brings changing in educational field. Online learning becomes more familiar for Indonesians.

Anderson and Elloumi (2004) outlined some of the benefits for learners and instructors in online learning. For learners, online learning knows no time zones, and location and distance are not an issue. In asynchronous online learning, students can access the online materials at anytime, while synchronous online learning allows for real time interaction between students and the instructor. Learners can use the Internet to access up-to-date and relevant learning materials, and can communicate with experts in the field in which they are studying. Situated learning is facilitated, since learners can complete online courses while working on the job or in their own space, and can contextualize the learning.

The popularity of online learning in Indonesia also brings to the more enjoyable, more flexible, and easier way in learning something. UT also makes use the advance development of online learning to the learning process.

#### *Moodle and UT-Online Learning Center*

In conducting the online tutorial, UT develops UT-Online Learning Center that utilizes Moodle. Moodle is a software package for producing Internet-based courses and web sites. It is a global development project designed to support a social constructionist framework of education ([moodle.org](http://moodle.org)).

Moodle is provided freely as Open Source software (under the General Public/GNU License). Basically this means Moodle is copyrighted, but has additional freedoms. We are allowed to copy, use and modify Moodle provided that we agree to: provide the source to others; not modify or remove the original license and copyrights, and apply this same license to any derivative work.

The word Moodle was originally an acronym for Modular Object-Oriented Dynamic Learning Environment, which is mostly useful to programmers and education theorists. It's also a verb that describes the process of lazily meandering through something, doing things as it occurs to you to do them, an enjoyable tinkering that often leads to insight and creativity. As such it applies both to the way Moodle was developed, and to the way a student or teacher might approach studying or teaching an online course ([moodle.org](http://moodle.org)).



Figure 2. UT Online Learning Center

### *Online Tutorial for the Techniques of News Writing Course*

The competency of the Techniques of News Writing Course is that students are able to explain how to gather and compose different kinds of news as well as analyze them. Ideally, in completing the competency, this course should be provided with practicum. However, it has become a constraint for UT in enhancing practical skills to its students because of the distance learning system that is conducted. Therefore in UT, the Department of Communication in the Faculty of Social and Political Sciences designs an online tutorial for the Techniques of News Writing Course to overcome this problem.

The online tutorial at UT is not a compulsory for students to take, it is an optional. It gives 30% contribution to the final score of the students, while the 70% comes from the final examination.

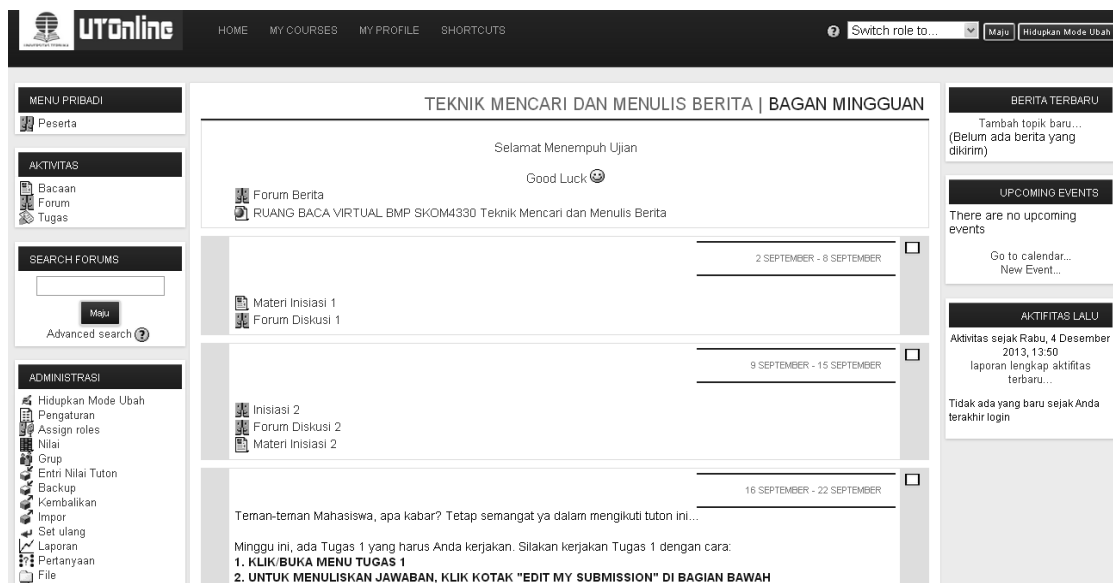


Figure 3. The Online Tutorial for The Techniques of News Writing Course

The online tutorial for the Techniques of News Writing Course is designed for eight-week activities. The eight-week activities that should be done by the students are as seen in table below.

Table 1. The Schedule of Online Tutorial

Week	Initiation	Activities
1	Opening + 1st material	Introduction to the techniques of tutorial, the mechanism of the discussion, and discussing the 1st material
2	2nd material	Discussing the 2nd material
3	3rd material + assignment	Discussing the 3rd material + 1st assignment
4	4th material	Discussing the 4th material
5	5th material + assignment	Discussing the 5th material + 2nd assignment
6	6th material	Discussing the 6th material
7	7th material + assignment	Discussing the 7th material + 3rd assignment
8	8th material + closing	Discussing the 8th material + closing

One of the competency that is taught by online tutorial is about how to write a good feature. Here are the examples of course material which is delivered through online tutorial (the slides were download from slideshare as open educational resources).

**HOW TO WRITE A GOOD FEATURE**

- 1. Choose the theme.**

  - Does the story have holding power (emotional appeal)? What makes the story worthy of being reported? The theme answers the question, "So what?"
- 2. Write a lead that invites an audience into the story.**

  - A summary may not be the best lead for a feature. The first two or three paragraphs set a mood, arouse readers, or invite them inside.
- 3. Write the body**

  - Then the **news peg** or the significance of the story is provided in the third or fourth paragraph, the **nut graph**. Because it explains the reason the story is being written, the nut graph--also called the "so what" graph--is a vital paragraph in every feature.

## Useful tips

- \* Some good feature leads include: Narrative, Descriptive, Striking statement and Punch or astonisher
- \* Be clear about why you are writing the article. Is it to inform, persuade, observe, evaluate, or evoke emotion?
- \* **FOCUS!** When you prepare for your feature story, you will gather a large amount of information through interviews and background research. Before you begin writing, focus on the main idea. WHY??? Because focusing will narrow your topic

- \* After writing the lead, you need a structure in which to place the information. A structure is an organizational pattern used to synthesize, that is to establish relationships between relevant pieces of information.
- \* **Provide vital background information.** If appropriate, a paragraph or two of background should be placed high in the story to bring the audience up to date.



Write in ACTIVE VOICE & if possible, present tense

ACCURACY IS IMPORTANT. You can interpret and embroider but do not fudge.

Keep your AUDIENCE clearly in mind.

Avoid CLICHES...

AVOID LENGTHY and COMPLICATED paragraphs.

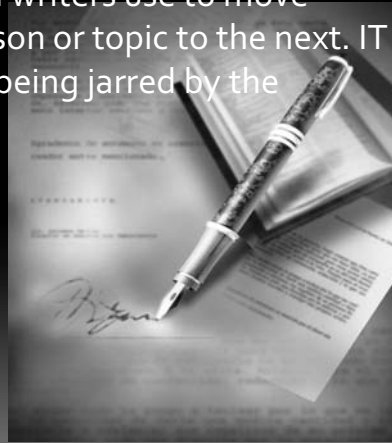
- **Write clear, concise sentences.** Sprinkle direct quotations, observations and additional background throughout the story. Paragraphs can be written chronologically or in order of importance. Be creative, watch, & listen...



- Read & Research
- Keep up to date, take notes and play with words!



- **Use transition.** Connect paragraphs with transitional words, paraphrases, and direct quotations.
- Transition is the tool writers use to move subtly from one person or topic to the next. IT keeps readers from being jarred by the writing.



### REMEMBER...

- The **body** provides vital information while it educates, entertains, and emotionally ties an audience to the subject.
- The **ending** will wrap up the story & come back to the lead, often with a quotation or a surprising climax. **Conclude with a quotation or another part of the thread.** A feature can trail off like a news story or it can be concluded with a climax.



Source: <http://www.slideshare.net/kitinkin/feature-writing-3072104?related=1>

The materials on how to write a good feature are learnt and then discussed by the students and with the tutor. To give students experiences in gathering and composing news, the tutor designs 3 assignments that are able to accommodate the experiences. For the first assignment, the students are requested to make a blog that can facilitate the requirement in writing. In the second assignment, the students are requested to do an interview with topic and person they feel interested in. They have to submit the transcript of the interview and also the pictures that show their activities while doing the interview. And as the third assignment, the students have to compose a short feature about study at UT.

In the second semester of 2013, there were 243 students who took this course. From 243 students, 167 were actively engaged in the online tutorial. There was 69% of the students who were joining the online tutorial. It is quite an exhilarate level of participation concerning the limitation to the Internet access in many remote areas in Indonesia.

However, if we look at the level of participation of the students in submitting the assignments given in this online tutorial, the percentages were even lower. It is shown in the table below.

**Table 2. The Level of Participation in Submitting Assignments**

<b>Assignment</b>	<b>The number of students who submit the assignment</b>
<b>1st</b>	106 (63%)
<b>2nd</b>	64 (38%)
<b>3rd</b>	72 (43%)

It seems that the level of participation of the students similar with the research conducted by Barbour and Hill (2011). Their research showed that the findings indicated that during the scheduled asynchronous class time students of Canadian virtual school were often assigned seatwork or provided time to work on assignments, however, students rarely used this time to complete virtual schoolwork. Students prefer to seek assistance from local classmates before turning to their online teacher or in-school teachers, and did not use the other support systems provided by the virtual school.

Highlighting the ability of the students in composing journalistic writing through this online tutorial as the main keys discussion of this article, the writer finds out that actually this online tutorial has a big impact on giving students experiences in composing journalistic writing. It can be seen from all the 3 assignments given in this online tutorial. Some of the students were already used their blogs in writing anything that attract their interests, although not many wrote oftenly. The students were also able to conduct the interview with quite good interview techniques that were taught both through the printed material, the inisiation material given in the online tutorial, and through the discussions with their fellow students. From the features that the students submitted, the writer is also able to see that some students even made a good quality of features that really fits the techniques of feature writing that were taught.

To give an insight about the blogs that the students make for the purpose of the online tutorial for the Techniques of News Writing Course, here are the examples of the blogs made by the students of the Communication Department:

## Blog Example 1

The screenshot shows a Blogger page with the following elements:

- Browser Tabs:** blog mahasiswa k..., Lomba Blog Dies..., Catatan Seorang..., Komunitas Mahas..., BINTANG HMSN..., Beckylicious: Uni..., Blog Archives - Th..., nurhayani: Pengsi...
- Address Bar:** nurhayani22.blogspot.com/2013/01/pengalaman-jadi-mahasiswa-ut\_3.html
- Navigation:** Apps, Google, Yahoo Indonesia
- Header:** ABOUT ME (Nurhayani Nur, 49 followers), THURSDAY, 3 JANUARY 2013
- Post Title:** Pengalaman jadi mahasiswa UT
- Image:** A photo of a woman in a hijab and uniform, likely a student or staff member.
- Text:**

Nama saya Nani Nurhayani, BMI Hong Kong asal Sukabumi, Jawa Barat. Saya lahir di Sukabumi, anak kedua dari tiga bersaudara. Saya ingin berbagi sedikit pengalaman kepada teman-teman khususnya BMI HK. Saya bekerja di Hong Kong hampir empat tahun. Mungkin saya salah satu BMI HK yang beruntung karena mempunyai majikan yang sangat baik. Dulu sebelum saya datang ke negri beton ini saya bermimpi ingin melanjutkan pendidikan yang lebih tinggi. Bagi saya, pendidikan itu sangat penting, seperti kata Ali bin Abi Talib, "Ilmu itu lebih baik daripada harta. Ilmu menjaga engkau dan engkau menjaga harta. Ilmu itu penguikum (hakim) dan harta terhukum. Harta kurang apabila dibelanjakan, tapi ilmu bertambah bila dibelanjakan". Alhamdulillah, Allah memudahkan segala urusan saya. Akhirnya saya bisa mewujudkan impian saya. Saat ini saya sedang menyelesaikan S1 Jurusan Komunikasi di Universitas Terbuka Hong Kong (UTHK) naungan Global Indonesia Training Center (GITC). Sebelumnya, saya juga telah mengikuti beberapa kegiatan, seperti beladiri (taekwondo), kursus komputer, kewirausahaan, pelatihan komunikasi, berorganisasi, belajar al Qur'an dan masih banyak lagi. Intinya saya memanfaatkan waktu yang ada.
- Blog Archive:** 2014 (2), 2013 (2) - January (2) - Pengalaman jadi mahasiswa UT, Lavender Garden, Alternatif Objek Wisata di Hong K..., 2012 (24)

[http://nurhayani22.blogspot.com/2013/01/pengalaman-jadi-mahasiswa-ut\\_3.html](http://nurhayani22.blogspot.com/2013/01/pengalaman-jadi-mahasiswa-ut_3.html)

## Blog Example 2

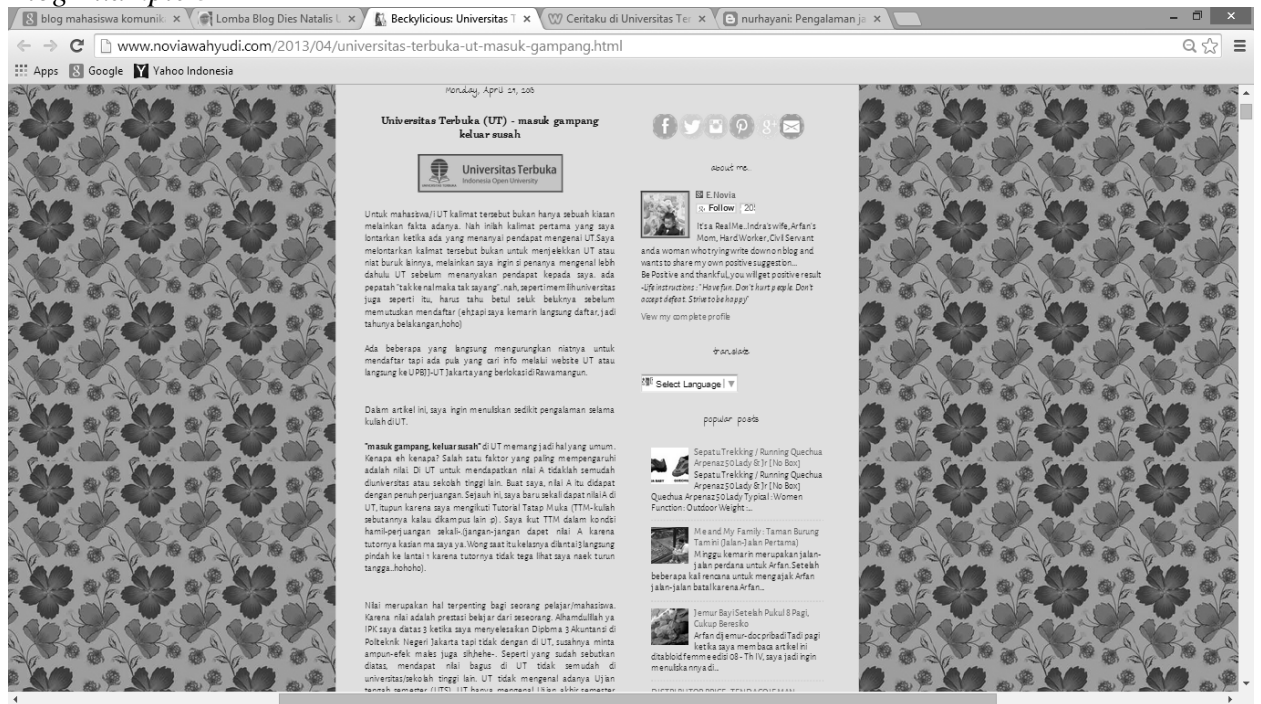
The screenshot shows a Weebly page with the following elements:

- Browser Tabs:** blog mahasiswa k..., Lomba Blog Dies..., Catatan Seorang..., Komunitas Mahas..., BINTANG HMSN..., Beckylicious: Uni..., Ceritaku di Univer..., nurhayani: Pengsi...
- Address Bar:** elmaulana.weebly.com/story/ceritaku-di-universitas-terbuka
- Navigation:** Apps, Google, Yahoo Indonesia
- Header:** Ceritaku di Universitas Terbuka, Story, Beberapa artikel pendek tentang perjalanan blognya.
- Image:** A photo of a graduation ceremony at Universitas Terbuka.
- Text:**

Universitas Terbuka. Bolehlah program yang hebat ketika kita SMA dulu. Namanya ada nama Indragiri salah satu guru di sekolah waktu itu dan SMA. Tapi, bergegaslah di Pendidikan Tinggi Jakarta (PTJ) atau Pendidikan Tinggi Indonesia (UTI) kemudian SMA punya pilihan. Ada SMA yang lebih bagus di Jakarta atau di. Karena itu, untuk melanjutkan ke SMA yang lebih bagus di Jakarta, saya memutuskan untuk memilih SMA yang lebih baik dari SMA di Universitas Terbuka atau yang diundang UT. Aku ingat, aku sedang berantusias saat pertama kali mendaftar di UT. Di universitas dengan metode pembelajaran sendiri terdapat. Sama dimulai saat aku mendaftar sebagai Guru Dikti dan Tangerang, dan saat ini aku sedang belajar di UT di Pondok Cabe. Itu yang membahayakan, aku ingat aku mendaftar di Pondok Cabe, dengan modal pendaftaran dari Cipuyang, Jakarta Timur. Itu yang yang sedang membahayakan di Tangerang dan Tangerang. Dengan pendaftaran, aku yang sedang belajar di Pondok Cabe sebagai Dikti dan Tangerang, pendaftaran di Pondok Cabe dan Tangerang serta beberapa lainnya.
- Blog Archive:** August 2014, July 2014, June 2014, May 2014, April 2014, March 2014, February 2014, January 2014, December 2013, November 2013, October 2013, September 2013, August 2013, July 2013, June 2013
- Categories:** All, Catatan, Wawancara Story, Ragu, Wawancara Story

<http://elmaulana.weebly.com/story/ceritaku-di-universitas-terbuka>

## Blog Example 3



<http://www.noviawahyudi.com/2013/04/universitas-terbuka-ut-masuk-gampang.html>

And here are the examples of features that the students submitted as the third assignment.

### Feature Example 1

#### *Bangga Menjadi Mahasiswa Universitas Terbuka*

Di minggu pagi yang cerah terlihat perempuan – perempuan cantik yang mandiri dan penuh semangat dengan senyum manis yang agak serius memasuki ruangan multimedia di gedung Sekolah Indonesia Singapura (SIS). Dimana ruangan tersebut digunakan untuk pertemuan rutin dan untuk sarana melancarkan system belajar bersama antara mahasiswa Ut Indonesia pokjar Singapura . Gedung itu sendiri yang letaknya di kawasan timur Singapura tepatnya di Siglap road 20A, selalu ramai didatangi perempuan-perempuan Indonesia yang bekerja sebagai PLRT (Penata Laksana Rumah Tangga) atau yang lebih kerap dikenal dengan sebutan TKW/TKI di Singapura setiap minggunya.

Mengapa setiap minggu gedung SIS sis selalu ramai didatangi PLRT Singapura ? Itu karena sekitar awal tahun 2009 gedung tersebut telah resmi membuka tempat pendidikan atau Learning Centre untuk para TKI/TKW di sini. Dimana tempat ini memberikan kesempatan bagi kami untuk mengembangkan ketrampilan seperti menjahit,kursus bahasa inggris, kursus komputer ,dan kesempatan untuk melanjutkan pendidikan ke tingkat yang lebih tinggi lagi. Salah satunya adalah Universitas Terbuka Indonesia Pokjar Singapura.

UTI Pokjar Singapura itu sendiri menawarkan beberapa program studi seperti ; S1 Administrasi Negara, S1 Ilmu Komunikasi, S1 Ilmu Pemerintahan, S1 Sosiologi, S1 Manajemen , S1 Akuntansi, S1 Penerjemah Bahasa Inggris, D3 Perpajakan, S2 Magister Manajemen, S2 Magister Ilmu Bidang Minat Administrasi Publik. Walaupun program studi yang ditawarkan tidak sebanyak UT lain yang ada di berbagai daerah Indonesia, kami sebagai PLRT yang berada di Singapura merasa senang sekali karena mendapat kesempatan untuk melanjutkan pendidikan ke bangku kuliah.

Aku sendiri mengetahui adanya UT Pokjar Singapura ini sekitar awal tahun 2009, dari salah seorang kawan yang waktu itu akan bertemu untuk makan siang bersama di kedai makan melayu. Kulihat dia menghampiriku dengan buku yang tebal di genggamannya. Segera ku tanyakan “ hai ti ,wah bukunya tebal banget, buku apaan nih? Emang kamu baru dari mana?” Dengan simple dan pelan Tina menjawab “ oh, ini buku hukum pemerintahan, aku kuliah di UT Indonesia jurusan S1 Administrasi Negara di siglap road 20A Sekolah Indonesia Singapura, kalo kamu mau gabung, minggu depan kesana saja, biar tahu informasi lebih lengkap”

Setelah pertemuan itu, aku benar-benar kesana minggu depannya untuk mendapatkan informasi dari salah satu staff yang di beri kepercayaan untuk mengelola UT I pokjar Singapura. Pelayanan yang sangat ramah dan penjelasan yang begitu meyakinkan, benar-benar membangkitkan semangatku untuk mendaftar di UT ini. Dengan keyakinan yang mantap, pada minggu berikutnya aku segera mendaftar dengan membawa persyaratan-persyaratan yang telah di tentukan yaitu ; fotocopy Ijazah SMA/setara yang dilegalisir asli (2 lembar), Pas foto ukuran 2x3 (3lembar), pas foto ukuran 3x4 (3lembar), fotocopy paspor (1lembar), uang pendaftaran.

UT Indonesia itu sendiri memberikan kesempatan bagi seluruh rakyat Indonesia untuk melanjutkan pendidikan dimanapun mereka berada dan menjangkau semua warganya karena perkuliahannya/ ujiannya hanya dilakukan pada hari minggu, di mana pada hari tersebut adalah hari libur bekerja dan belajarnya secara mandiri.

Ada suatu kebanggaan sendiri setelah terdaftar menjadi mahasiswa UT I Pokjar Singapura. Bersabar sejak 10 tahun setelah lulus SMK, sebuah impian ingin merasakan bangku kuliah akhirnya kesampain. Walaupun perkuliahan ini kami sebagai mahasiswa harus belajar mandiri, kami selalu semangat menjalaninya. Dengan system belajar mandiri yaitu mempelajari modul sendiri dan dengan melakukan tuton yang memberikan kontribusi 30% serta tutorial atas permintaan mahasiswa yang memberikan kontribusi 50% terhadap nilai UAS, kami harus bisa membagi waktu antara bekerja di rumah majikan dan mempelajari modul. Dengan jadwal dan tugas rumah yang begitu banyak dan padat, kadang kami merasa kewalahan untuk mempelajari modul-modul MK(mata Kuliah). Beruntung Ut menyediakan program-program Tuton dan Tutorial atpem yang dapat memberikan kontribusi nilai yang lumayan tinggi. Tapi sayangnya , biaya tutorial atpem yang ada di Singapura inilumayan mahal. Dan tidak semua mata kuliah di tutorkan.

UT yang telah memberikan peluang untuk melanjutkan pendidikan dan juga memberikan kesempatan bagi kami untuk belajar berorganisasi, telah melatih daya pikir kita untuk bisa berpikir lebih matang dan lebih positive dalam menghadapi berbagai masalah dan keadaan untuk menuju masa depan. Harapanku, setelah lulus dari UT nanti, aku dapat mengembangkan dan menggunakan ilmu yang telah ku pelajari ini untuk bisa membuka lapangan pekerjaan sendiri, setidaknya untuk merubah nasib yang lebih baik lagi dari sekarang.

Siti Huzaenah (015285009)

## *Feature Example 2*

### *Setiap warga negara berhak mendapat pendidikan*

Setelah menamatkan pendidikan di SLTA kebanyakan orang (calon mahasiswa) beramai-ramai mendaftarkan diri di Universitas Negeri favorit seperti UGM, ITB, UI dan banyak lagi Universitas favorit lainnya. Tetapi tentunya tidak semua orang punya kesempatan untuk menempuh pendidikan tinggi di universitas favorit. Yang punya kesempatan hanyalah yang punya waktu dan tentunya juga kemampuan ekonomi keluarga.

Dalam era globalisasi seperti sekarang ini, sistem informasi dan teknologi yang berkembang pesat mengharuskan kita belajar dan terus belajar untuk menghadapi tantangan globalisasi. Proses belajar yang kita kenal dimulai dari lingkungan yang paling kecil yaitu keluarga, sekolah dan masyarakat. Belajar baru berhasil bila kita mampu membuat kebiasaan baru. Hal yang kita lakukan sehari-hari yang meningkatkan kualitas hidup kita sebagai manusia.

Belajar berarti berlatih diri kita, sehingga kita memiliki sesuatu kemampuan yang baru atau kemampuan yang semakin tinggi. Kebutuhan Pengembangan Sumber Daya Manusia (SDM) tumbuh seiring dengan berkembangnya ilmu pengetahuan dan teknologi. Pendidikan merupakan wahana terpenting dalam pengembangan SDM. Namun, keterbatasan tempat dan waktu menjadi kendala utama bagi banyak orang dalam mengembangkan diri dan meningkatkan kemampuan diri. UT merupakan satu-satunya perguruan tinggi yang mampu menjawab tantangan di era globalisasi saat ini, dan UT merupakan program pemerintah sesuai konstitusi kita melindungi hak kita untuk mendapatkan pendidikan tertuang dalam Undang-undang Dasar 1945 Pasal 31, ayat 1 yaitu :Setiap warga negara berhak mendapat pendidikan. Karena UT yang semakin menjangkau masyarakat secara luas, tidak hanya di kota besar tetapi juga di kota-kota kecil, bahkan sampai daerah terpencil.

Seiring dengan perkembangan informasi dan teknologi komunikasi saat ini seakan mewujudkan mimpi untuk kembali melanjutkan kuliah ditengah-tengah kesibukan saya sebagai karyawan di salah satu perusahaan swasta di Bali. UT yang sangat flexible baik dari segi administrasi, maupun kegiatan perkuliahan serta modul yang disediakan

mendukung membentuk masyarakat Indonesia mandiri yang mandiri dalam pengembangan diri. Dunia kerja dengan system perkuliahan di UT sangat bergantung dengan perkembangan teknologi saat ini yang berkembang pesat. Banyak cara yang dapat dilakukan seseorang untuk mendapatkan pengetahuan baru dengan memanfaatkan teknologi informasi komunikasi. Prinsip belajar dan teruslah belajar menjadi pendorong saya menempuh pendidikan tinggi lewat UT.

Cyprianus Sehad (016102304)

### *Feature Example 3*

Surabaya – “Rajin Pangkal Pandai” itulah barangkali ungkapan yang tepat untuk mengikuti kuliah di Universitas terbuka dengan sistem pembelajaran jarak jauh hanya dipandu dengan modul yang sudah disiapkan dari pihak universitas.

Selasa 2 November 2011, siang itu di ruang admin UT surabaya terlihat banyak sekali mahasiswa termasuk saya melakukan penukaran slip tanda bukti pembayaran spp dari bank dengan kartu ujian, khususnya untuk mahasiswa nonpendas( program bukan pendidikan dasar). Tidak terasa waktu berlalu begitu cepat dari hari berganti bulan rasanya baru kemarin ujian sekarang sudah menghadapi ujian kembali, kadang-kadang merasa lelah, sedih apabila ada suatu masalah dalam pembelajaran yang tidak bisa dicerna secara cepat solusi yang didapat sangatlah terbatas, tidak adanya komunikasi antara dosen dan mahasiswa merupakan kendala yang sangat besar walaupun kuliah di UT dituntut kemandirian dalam segala hal , tetapi fasilitas dan sumber tetap sangatlah penting untuk mendukung terciptanya suasana pembelajaran yang baik sehingga *Universitas Terbuka bisa mencetak sarjana-sarjana yang mempunyai skills yang menunjang bukan hanya mencetak sarjana yang hanya mengharapkan selebar ijazah sebagai modal kerja tapi tidak memiliki kemampuan intelektual yang handal.*

Ketika masa berganti, kendala dalam hal pembelajaran bisa diminimalisir dengan adanya suatu inovasi UT memperkenalkan sistem “TUTON” yaitu tutorial online, artinya tutorial dengan menggunakan media elektronik (komputer). Ini merupakan suatu fasilitas pembelajaran jarak jauh tanpa biaya yang diselenggarakan oleh UT sebagai alat komunikasi antara dosen dan mahasiswanya sesuai dengan mata kuliah yang bersangkutan. Cara mengakses tuton ini adalah mahasiswa yang sudah melakukan registrasi mata kuliah dan mempunyai acount email, karena semua data akan dikirim melalui acountnya kemudian melakukan registrasi di tuton sesuai dengan persyaratan tertentu, untuk lebih rincinya pihak UT mengeluarkan buku panduan yang disebarakan secara gratis kepada mahasiswa tentang tuton. Begitu pula yang saya alami sekarang ini memang tidak semua mata kuliah yang ditawarkan bisa diakses melalui tutorial online ini ada sebagian mata kuliah yang tidak akses ketuton sehingga metode pembelajaran hanya membaca atau sesekali melakukan latihan yang ada di modulnya saja lagi-lagi faktor kemandirian ditekankan disisni, hal ini merupakan suatu hambatan juga, sedangkan tutorial online sangat membantu mahasiswanya, selain bisa dimanfaatkan untuk ajang diskusi sesama peserta tuton juga ada suatu komunikasi persuasif yang dilakukan dosennya untuk memacu



mahasiswa lebih aktif memanfaatkan fasilitas tutor tersebut, adapun efeknya adalah mahasiswa terpersuasi untuk mengerjakan tugas dan aktif dalam diskusi selain menambah wawasan dan intelektual juga sistem reward yang ditawarkan dosen sangat menyenangkan yaitu bertambahnya nilai sebesar 30% bagi mahasiswa yang aktif dalam tutor ini.

Semoga berkembangnya komunikasi pembelajaran lewat tutorial online menjadi solusi yang baik sehingga diharapkan semua mata kuliah bisa diakses melalui tutor ini yang akan membantu mahasiswa dalam proses pembelajaran, hanya kendalanya adalah tidak semua mahasiswa mempunyai fasilitas pendukung untuk mengakses tutor ini khususnya mungkin sebagian mahasiswa yang ada di daerah dimana hambatan komunikasi bisa terjadi mengingat faktor demografis yang tidak merata, semoga untuk kedepannya teknologi bisa merata sampai ke pelosok sehingga bisa memfasilitasi mahasiswa UT khususnya untuk bisa mengakses tutor sehingga bisa membantu program pembelajaran jarak jauh tetapi tetap dapat menciptakan sarjana yang handal. (dewi nurmalasari)

Dewi Nurmalasari (016208697)

### *Conclusions and Suggestions*

Online tutorial which uses moodle does work in giving different, unique, and practical experiences for distance learning students. The quite low level of participation of the students who engage in this online tutorial might be caused by two things, first because of the lack of infrastructure in accessing the Internet in many remote areas in Indonesia. Second, because of the policy at UT which puts online tutorial as an optional process of learning not as a compulsory one which is actually also in line with the nature of open and distance education.

The writer suggests there should be more efforts from the government of Indonesia in providing better infrastructure that enable remote areas to have a good quality of Internet access. There should be also a special policy from the Department of Communication of UT to give a higher percentage of contribution to the final scores of the students from online tutorial for practical courses that are able to give practical experiences to increase the students' level of participation.

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# **A social constructivist approach for an online civic education tutorial**

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## **ABSTRACT**

This study addressed the reforming of an online civic education tutorial at the Indonesia Open University or Universitas Terbuka (UT). Several contemporary literatures were reviewed to determine best practices, including social constructivism and a democratic form of teaching. Constructed from the review of literature, the paper proposed a new model of pedagogical approach to the existing practice of the online civic education tutorial.

The proposed model for the online civic education tutorial in this study was based on the Community of Inquiry framework from Garrison, Anderson & Archer (2000) that promoted a social constructivist approach, and a democratic form of teaching. The learning of the tutorial in the model was theorized to occur within the community through the interaction of social presence, cognitive presence, and teaching presence. In social and cognitive presence, students would form an online community where they would have collaborative discussions among students and between students and tutors, as well as would be expected to practice critical thinking. Teaching presence would occur when tutors promoted a democratic environment in the class, where they would model civic dispositions throughout their teaching. Tutors would show their respect and tolerance to students while facilitating discussion activities and giving direct instructions. Students would also be expected to be tolerant and respectful when they have discussions with other students and tutors. Through this model, students would be expected to gain civic knowledge, civic skills and civic dispositions, as well as experience with a democratic interaction that mirrors the interactions in a democratic society.

Keywords: civic education, online tutorial, social constructivist approach, democratic form of teaching

## **Introduction**

Civic education is a compulsory course from primary schools to post-secondary schools in Indonesia. However, it is a common experience in schools that civic education is a boring subject to be learned. One of the reasons might be that the teachers' approach in delivering the subject draws from a "transmission model" and only includes memorizing the content. This approach might only cover civic knowledge, which is not enough, because the purpose of civic education is also to create good citizens who have civic skills and civic dispositions, and are capable of participating actively in a democratic society.

The context of this study was civic education as an undergraduate level course subject in an online tutorial taught at Universitas Terbuka (UT). UT is a state university and the only higher education institution in Indonesia that teaches entirely using the distance education method. The online tutorial of the civic education course at UT still primarily emphasized civic knowledge. The pedagogical approach of the online civic

education tutorial had not yet supported the development of civic skills and civic dispositions. Therefore, the purpose of this study was to inform the design of an alternative pedagogical approach for the existing practice of the online civic education tutorial. The approach was drawing from a social constructivist approach to provide a model of a democratic form of teaching that would address and develop civic knowledge, skills, and dispositions.

### Constructivism and Social Constructivist Approach

Educators derived specific teaching techniques based on an epistemological approach, a philosophical viewpoint, and a psychological construct of constructivism (Morales, 2010). Constructivism is based on the belief that knowledge is not a thing that can be simply given by the instructor to learners. Learners do not absorb information from the outside world by mere transference of knowledge from the teacher, but rather, they learn by actively organizing and making sense of information in their own ways (Prawat & Floden, 1994). Knowledge is constructed by learners through an active, mental process of development by linking the newly received information to their existing knowledge and experience (Blumentritt & Johnston, 1999).

Constructivism can be seen as a learning paradigm that shifts the pedagogical method from teacher-centered to learner-centered. Teacher-centered approaches are characterized by a view that the teacher is the primary source of knowledge for learners. Meanwhile in a learner-centered environment, the focus is on the preferences of the learners (Brown, 2006). One of the primary goals of constructivism is to provide a democratic and critical learning experience for learners. It serves to open boundaries through inquiry, not through unquestioned acceptance of prevailing knowledge (Hirtle, 1996).

Constructivism treats the individual as actively involved in the process of thinking and learning. The learners are the key players who participate in generating meaning or understanding. They do not just listen or read, but also debate, discuss, analyze, hypothesize, investigate, and take viewpoints (Perkins, 1999). Therefore, the learners cannot just passively accept information by repeating others' wordings or conclusions. They have to be creative, and also internalize, reshape or transform information. They also connect new learning with already-existing knowledge (Ornstein & Hunkins, 2009).

There are two strands of constructivist learning theory: cognitive constructivism from Jean Piaget (1972), and social constructivism from Lev Vygotsky (1978). Social constructivism proposed by Lev Vygotsky stressed that socio-cultural systems have a major impact on an individual's learning (Vygotsky, 1978; Ruey, 2010). Learning could not be separated from the social context in which it occurs, nor could accommodation and assimilation occur without active integration of the learner in some form of community of practice, even if that involved just one other person or merely a sociocultural milieu (Stavredes, 2011).

Vygotsky emphasized dialogue and interaction with peers and instructor in the learning process (Woo & Reeves, 2007). Dialogue and interaction allow a dynamic sharing of knowledge, understanding and experiences (Reed, Smith & Sherratt, 2008). According to social constructivist theory, knowledge is socially constructed and situated through reflection on one's own thoughts and experiences, as well as other learners' ideas: Vygotsky recognized both the social processes and interior processes of

assimilation in learning (Ruey, 2010). In the social constructivist learning environment, learners are encouraged to actively engage in learning, such as discussing, arguing, negotiating ideas, and collaboratively solving problems (Palincsar 1998; Ruey, 2010). Social interactions with the teacher and other students are a significant part of the learning process. Knowledge is not solely constructed within the mind of the individual; rather, interactions within a social context involve learners in sharing, constructing, and reconstructing their ideas and beliefs.

Social constructivism led to developments around active learning: the notion that learning is not a passive process, but rather requires active involvement and engagement with both materials and peers. The theory also supports learner ownership of learning which takes place in a meaningful, authentic context and becomes a social, collaborative activity, where peers play an important role in encouraging learning, and in developing critical thinking skills, problem-solving, and team skills (Neo, 2005).

### Theory of Community of Inquiry

The proposed model for the online civic education tutorial at UT is based on the Community of Inquiry framework from Garrison, Anderson, and Archer (2000), and a democratic form of teaching. The Community of Inquiry framework promoted a social constructivist learning approach. In this framework, learning occurs within the community through the interaction of three elements: namely, social presence, cognitive presence, and teaching presence.

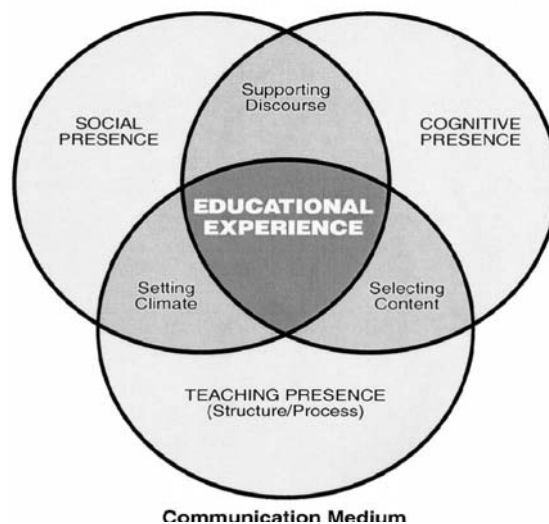


Figure 1. Community of Inquiry Framework (Garrison, Anderson & Archer, 2000)

Social presence is defined as “the ability of participants to identify with the group or course of study, communicate purposefully in trusting environment and develop personal and affective relationships progressively by way of projecting their individual personality” (Garrison, 2011, p. 34). Social presence creates the academic setting for open communication, sense of belonging to the group and its academic goals. It also produces an environment for learners to express themselves freely and openly. And these will contribute directly to group cohesion.

Cognitive presence is defined as “the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse in a critical community of inquiry” (Garrison, Anderson, & Archer, 2001, p. 10-11). This model consists of four phases of critical inquiry, namely the (a) triggering event, (b) exploration, (c) integration, and (d) resolution. The triggering event is the initiation phase of critical inquiry. In this phase, an issue, dilemma, or problem that emerges from the experience is identified or recognized. The second phase is exploration. This phase is characterized by brainstorming, questioning and exchange information. The third phase is integration. This phase is characterized by construct meaning from the ideas generated in the exploratory phase. The fourth phase is a resolution of the dilemma or problem by means of direct action.

Meanwhile, teaching presence is defined as “the design, facilitation and direction of cognitive and social processes for the purpose of realizing personality meaningful and educationally worthwhile learning outcomes” (Garrison, Anderson, & Archer, 2001, p. 5). As a course designer, it is essential for teacher to make a planning for the process, evaluation, structure and interaction aspect of online course before the course becomes available to students. Facilitating discourse is defined as a critical element to "maintaining interest, motivation and engagement of students in effective learning" (Anderson, Rourke, Garrison, and Archer, 2001, p. 7). As a facilitator in online learning, the teacher encourages participation of students by modelling, commenting on posts, identifying areas of agreement and disagreement, keeping the discourse focused on learning objectives, and trying to draw in inactive students. Direct instruction, refers to teachers providing intellectual and scholarly leadership through in-depth understanding of their subject matter knowledge. This role is similar to that of a subject-matter expert. Using subject and pedagogical expertise, the instructor directs learners, provides feedback, and injects knowledge from several resources

### Democratic Teaching

When we discuss civic education and democratic teaching, there are two common perceptions of democracy that are mutually interdependent: one is democracy as a form of government, and is democracy as a philosophy for and the basis of a way of living. Print, Ørnstrøm, & Nielsen (2002) asserted that democracy as a form of government is characterized by free and fair election, division and separation of powers, the rule of law, human rights, freedom of speech, and so on. Meanwhile, democracy as a way of living is concerned with willingness to compromise, tolerance, a willingness to listen to and be influenced by arguments, maintaining a civil society, acceptance of other attitudes and opinions, trust, and so forth. Essentially, this perspective is based upon those values that allow a democracy to function effectively and engage citizens.

Those two perceptions support each other; without a legal and institutional framework a democratic lifestyle cannot effectively exist, and vice versa. For an effective education for democratic citizenship, the two perceptions are considered necessary and important. Successful democracies are mostly based on the values of democratic lifestyle, and democratic teaching tries to develop those values while, in the process, modeling democratic ideals and ways of being (Print, Ørnstrøm, & Nielsen, 2002).

Democratic teaching is a forum for democratic efforts to make the school a center of learning about democracy through a democratic process. Democratic teaching

inspires a learning process that is based on democratic values, namely respect for the individual. In practice, the learners should be respected for their ability and given the opportunity to develop their potential. Therefore, democratic teaching requires an open atmosphere, trust and genuine mutual respect in its teaching and learning processes.

A democratic education also entails sharing power within the classroom (Mattern, 1997). Sharing power with students means offering them real choices about course content and process. According to Mattern (1997), democratic education is necessary because it better enables the development of democratic skills and dispositions. If students engage routinely in educational practices that teach passivity, they internalize these traits and accept them as normal. Alternatively, teaching critical intelligence, creative problem-solving skills and a critical stance toward social norms requires educational practices that develop these traits in the classroom. Democratic theory might more easily be learned and understood deeply by including some experience in the practice of democracy and using this experience as a basis for critical reflection and analysis.

The classroom can be used as a laboratory in which students learn democracy by practicing it. Soder (1996) asserted that implementing principles of democracy in classroom practice provides students with a context for understanding and developing the dispositions of citizenry in a democratic society. A study from Hahn (1998) concluded that a democratic classroom in a civic education program has a contribution to democratic preparation in community.

#### Online Tutorial at Universitas Terbuka

Universitas Terbuka (UT) is a distance teaching university where the students learn independently. Independent learning is not easy for some people. In order to facilitate students in their independent learning process and to enhance their learning achievement, it is important for the distance education institution to provide learning support with an affordable and accessible system for its students, since students vary in terms of their age, educational level, study skills, readiness and ability to study on their own (Adnan & Padmo, 2009; Universitas Terbuka, 2009).

Among the learning supports offered by UT is the tutorial. At UT, the tutorial can be taken either face-to-face or at a distance by means of various media. Online tutorial is the distance tutorial that is based on the Internet. Online tutorial at UT serves as a learning support for students to develop a better understanding of the materials in their courses. It uses Moodle as its Learning Management System (LMS). The tutorial's activities at UT run for eight weeks in a semester. Basically, the activities in the tutorial have several features such as initiations that are course overview and other resources, topics for discussion, and assignments. In the course overview, students can view the entire content of the course and the relations among the various sections. Resources include additional learning materials for students who have already studied in the modules. Discussion topics provide students with activities to master the course. Assignments are provided to evaluate students' mastery of the course that would be given in weeks three, five and seven. (Andriani, 2013).

#### A Proposed Model for an Online Civic Education Tutorial

The civic education course is a compulsory course for all undergraduate students at UT. Therefore, all students from all faculties have to take the course. The

consequence is that there are large numbers of students who take the course in every semester, which are about 3000 students. These students are also automatically registered in the online civic education tutorial. To manage those large numbers of students, UT has a policy to divide students into several classes if one class of the tutorial consists of more than 300 students.

Managing 300 students in one class is still a challenging task for tutors. Therefore, in the proposed model, the students in one class would be divided again into several groups. One group would be comprised with 10-15 students. So, in one class there would be 25-30 groups. Students in each group would be expected to form an online community. They also would be given a topic or case study to be discussed and they would be expected to have collaborative discussions among themselves. The topic or case study would be the same for each group. However, students from different groups cannot join the discussion in other groups. From this way, students would be able to have more intense collaborative discussions in a small group. Also, the discussions activities would be more manageable for tutors, because they do not need to respond the students one by one; they could provide feedback in groups.

The features of online civic education tutorial activities at UT are initiation, discussion, and assignment. In proposed model, the learning activities in the online civic education tutorial would occur within the community of inquiry through the interaction of social presence, cognitive presence, and teaching presence. The implementation of the model would be likely as follows. In the first week, tutors would give introduction about the tutorial, the syllabus for eight week activities; what kind of activities or interactions that are expected from students, and the goals of the tutorial. Tutors would be expected to introduce themselves, and open the conversation with students and ask students in every group to introduce themselves to each other. These activities would create social presence and formed online communities.

In the second to eight week, tutors would give initiations, discussions, and assignments. The initiation materials could be from modules, also an addition of more materials from other sources such as journal articles, books, newspaper, and internet. For discussion activities, tutors would provide current topics, or case studies to be discussed by students in each group. To make the discussions more interesting, the case studies need to be relevant with students' life. Students also could be given an opportunity to propose a discussion question or case study. This opportunity would give students more power in their learning. For assignments, tutors would provide tasks, such as portfolios, mini papers or regular questions.

Cognitive presences would occur when students form an online community where they would have collaborative discussions every week during the eight-week period of the online tutorial. In the collaborative discussions, students would be expected to construct knowledge together and practice critical thinking while reading and discussing current case studies of social and political issues. Through these activities, students would gain civic knowledge and civic skills.

Teaching presence would occur in this model when tutors promoted a democratic environment in the class. Tutors would give students more power in their learning by providing opportunities for students to propose discussion questions and become co-facilitators in the discussions. Tutors would model civic dispositions throughout their teaching in the tutorial. Tutors would show their respect and tolerance to students when they facilitated discussion activities and gave direct instructions.

Students were also expected to be tolerant and respectful when they have discussions with other students and tutors.

Through this model, it would be expected that students would experience a democratic interaction that mirrors the interactions in a democratic society: that they were being critical in thinking, tolerant, respectful, and were actively participating in the society.

## Conclusion

Social constructivist approach to a democratic form of teaching would be effective in developing civic knowledge, skills and dispositions. They would allow tutors to model the civic knowledge, skills and dispositions. Students also would engage actively in the learning process in the online civic education tutorial through the proposed model.

It is important to make the online tutorial activities manageable especially because the curriculum and pedagogical approach for the online civic education tutorial in the proposed model might both be somewhat more complex than before. The management concerns would be addressed if students and tutors are happy and the curriculum and teaching situation are meeting their needs.

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# **A survey on the MOOC English course at University Terbuka**

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## **Abstract**

MOOC UT is just launching in May 2014. MOOC is a course of study available over the Internet without charge to a very large number of people. People who decide to take a MOOC just simply logs on to the website and signs up may join MOOC. It seems that people are eager to attend the English course through this mode of learning. The survey is divided in two aspects, first focused on the the process of developing the course, the process of tutorial, forum, chat, handling the tasks, and the process of giving feedback on the participants' task on MOOC. How the tutor manage the tutorial which are attended by about 654 participants. How the tutors arrange the process of handling the course since there are two tutors who handling this course. Second, this paper will describe the participants feedback on a survey of "Tell us what you think about this course" about: 1. Performance; 2. Material; 3. Time; 4. Assignment; 5. Forum; 6. Chat; 7. Others. Furthermore, it will also describe the participants background and their goal on attending the course of MOOC. Their suggestions for the future of the course and handling more effective will also show in this paper. Some comments, examples on forum, chats and others will quote on this paper. The result of the survey will recommend the manager, administration and tutor to handle course through MOOC be effective differ from handling the previous tutorial online.

Key words: Handling, English Course, MOOC

## **Introduction**

Survey on MOOC is conducted during the writers did the process of teaching "English for Children course" through MOOC model in Faculty of Education in Universitas Terbuka (UT). UT has conducted tutorial online (tuton) since 1999 which is differ from MOOC mode. MOOC in UT is a new mode which conducted since April 2014. This survey aims to find some needs on developing MOOC for future and it will recommend the manager, administration resources and tutors on being effective to handle it. The survey also shows the differences of handling tuton and MOOC. The process of developing material, conducting learning process (forum, chat, discussion, tasks, assignments and final test) will be discussed in the following of this paper. The background of the participants in this course will be shown in this paper and the participants responds on the course during they attend MOOC will also be described in details as part of the survey. This paper showed the differences of handling MOOC and tuton.

## Literature Review

Reviewed literature on distance learning especially online learning and computer-assisted language learning (CALL) is wide range. English has become a global interactions tool means huge of people need to learn English and huge of English teachers demand is increased. To achieve massive demand on the opportunities of learning English then Universitas Terbuka as a university which applied open and distance learning mode prefers to serve people in Indonesia who want to develop their ability on learning English course through MOOC.

MOOC (**Massive Open Online Course**) is aimed to serve unlimited participation and open access via website. MOOC is called an online course which is an addition to traditional course materials such as videos and readings. MOOC is providing interactive user forums to help on building a community for students, tutors and teaching assistants. This mode is a new one which started to use in 2012 as a recent development on distance education . ([http://en.wikipedia.org/wiki/Massive\\_open\\_online\\_course](http://en.wikipedia.org/wiki/Massive_open_online_course))

Previous MOOC emphasized its access on open features called connectivism on content, structure, learning goals by using electronic media, educational technology and ICT (information and communication technologies). The role of social and cultural context is the learning emphasized by the connectivism. Vygotsky's perspective ZPD (zone of proximal development) is associated with the proposes of connectivism. The relationship between work experience, learning, knowledge is expressing on the concept of connectivity. Connectivism indicates to give effect of technology on how people live, communicate and learn. Central aspect of connectivism is network with nodes and connections. The central aspect of connectivism is also proposing people learn through contact. It connects to expand and increase network. Stephen Downes (2007) states: "at its heart, connectivism is the thesis that knowledge is distributed across a network of connections, and therefore that learning consists of the ability to construct and traverse those networks". Furthermore, Wikipedia states: "In 2008, Siemens and Downes delivered an online course called "Connectivism and Connective Knowledge". It covered connectivism as content while attempting to implement some of their ideas. The course was free to anyone who wished to participate, and over 2000 people worldwide enrolled. The phrase "Massive Open Online Course" (MOOC) describes this model. All course content was available through RSS feeds, and learners could participate with their choice of tools: threaded discussions in Moodle, blog posts, Second Life and synchronous online meetings. The course was repeated in 2009 and in 2011".

Nowadays, prestigious universities are offering some courses free to anyone in the world through MOOC. MOOC was introduced by George Siemens and Stephen Downes in 2008. They provide free online to people in the world in three years (2008, 2009, and 2011). At first year, they provide MOOC both of 25 tuition-paying students in Extended Education at University of Manitoba and over 2200 online participants from the general public who are not need to pay. According to [http://en.wikipedia.org/wiki/Massive\\_open\\_online\\_course](http://en.wikipedia.org/wiki/Massive_open_online_course) Stanford proffesors have been conducting MOOC on the course artificial intelligence which are attracted 160.000

students from 195 countries and they receive a certificate of accomplishment without any credit. Many other universities are started to offer MOOC and now about 115 courses are offered by 33 private and public universities across countries(Allen & Seaman, 2013).

Some researchers have been done studies on MOOCs. One of the studies are focused on the ethics of research on MOOCs as doing by Antonella Esposito (2012) in Electronic Journal of E-learning Volume 10 Issue 3 2012 ISSN 1479-4403. There is also study on Exploring the MOOC format as a pedagogical approach for mLearning by Inge de Waard and colleques.

### **English Course**

English course in UT has already offered for about 30 years. Conducting teaching learning English through open and distance education (DE) system UT has started in 1984 and began with a combination of correspondence such as; text only (modules), audio two-way radio/telephone, audio-cassettes, CDs, video and televised lectures, and face-to-face tutorials, computer-based learning (that is, without network connection), internet materials and resources, internet communications. At first, DE system seems lack of social component however, this component can be conducting through internet. All interactions can be handling through internet among students and peers and tutor and students (Jennings, 2002).

Vygotsky as one of the expert on education who believe that the fundamental basis of learning process is primarily social interaction has indicated to the learning process of language is primarily social interaction as well. The basis learning of language is conceptualized focus on interaction. Interaction always conducted in social situation rather than individualized (Hoover, 1996).

Nyaradzo Mvududu (2012) stated: The reality we face in our schools is that the student population is becoming more and more diverse. It is important that we intentional think about how to effectively teach our students. Constructivism represents one of the big ideas in education. Its implications for how teachers teach and learn to teach are enormous. If our efforts in reforming education for all students are to succeed, we must focus on students. To date, a focus on student-centered learning may well be the most important contribution of constructivism. As Phillips (2000) noted, “it seems possible for a person who accepts constructivism as a philosophy to adopt a variety of educational practices or for a teacher who uses constructivist classroom practices to justify doing so in a variety of ways, some of which might not philosophically be constructivist at all” (p. 18).

There are no previous research about MOOC applying on English teaching course, however there are numerous researches on online using in teaching and learning English. As Andrew J. Morall (2011) has done research on teaching English by the Web: Implications for teacher training in Hong Kong states “findings include that students believe using the Internet has improved their research skills; sometimes they study in more depth than is necessary; many find that they do not have enough computer knowledge when using the Internet, and that using the Internet has made them more independent learners. Most teachers had communicated with students by e-mail, ICQ or

the Internet, but very few had put pages onto the Internet. Given the emphasis placed on IT by the Education Commission of the Hong Kong Government, suggestions are made for teacher training in the use of the Internet for English language learning Hong Kong.” Another research stated on Global Volunteer Network by Louisa Walsh (2010) has done a research on Why teaching English through Skype. A Case for Online English Language Teacher Education by Denise E. Murray stated his research on [http://www.tirfonline.org/wp-content/uploads/2013/03/TIRF\\_OLTE\\_One-PageSpread\\_2013.pdf](http://www.tirfonline.org/wp-content/uploads/2013/03/TIRF_OLTE_One-PageSpread_2013.pdf)

### **Methodology**

The survey has conducted during the writers conducting the MOOC process. A eight-week MOOC English for Children course is implemented as a trial course of Faculty of Teacher Training and Education in Universitas Terbuka. Data collection included the MOOC design of the course, process of delivering materials, tasks, forum, chat, actual level of participation type of participants, participants satisfaction to the course, demographic information of the participants and final test.

### **Discussion of finding and suggestions to improve**

UT has conducted tutorial online (TO) for some years. The way UT conducted TO is different to MOOC design. On the below table, it shows the differences of TO and MOOC.

Table 1

<b>Activities</b>	<b>TO</b>	<b>MOOC</b>
Registration	Enroll to pay	Free not getting student number
	English teachers	All backgrounds
Benefit	Degree	Non degree (Certificate)
Tutorial	Compulsory	Compulsory
Forum	Compulsory	Compulsory
Chat	Not Available	Available
Tasks	Compulsory	Compulsory
Feedback	Compulsory	Compulsory
Final Test	Compulsory	Compulsory

TO requires registration and the students have to pay tuition fee however, MOOC is free but participants do not get students number. In English courses of Faculty of Education, there is a requirement for whom want to participate, they should be teachers. MOOC is open to anyone who want to participate. TO is a degree program otherwise MOOC is non degree program. Tutorial, Forum, Tasks, Feedback and final test are compulsory on both TO and MOOC. Chat is only available on MOOC.

### **Course Design**

Tutor design the materials for tutorial as stated on the table below. Participants activities are shown as well.

Table 2

Tutor	Participants
Design the materials 1. Introduction 2. Upload materials for discussion 1 3. Checking Discussion 1 4. Announcement 5. Chat 1 6. Upload materials for discussion 2 7. Chat 2 8. Checking Discussion 2 9. Announcement for Task 1 10. Checking/grading Task 1 11. Uploading materials for Task 2 12. Checking/grading Task 2 13. Announcement for participating on giving feedback of MOOC design 14. Uploading materials for final test (FT) 15. Checking/grading Final Test	1. Introduce themselves 2. Reading material 3. Participate on discussion 4. Read announcement 5. Participate on chat 1 6. Reading materials 7. Participate on chat 2 8. Participate on discussion 9. Answering Task 1 10. Read grade on task 1 11. Reading materials and Answering Task 2 12. Read grade on task 2 13. Participate to give feedback about MOOC design 14. Read the material and answering FT 15. Read grade on Final Test

However, all the above designs are uploading thematically as followed.

- Participants
- Badges
- Introduction
- Literature review
- Theory of teaching learning English for children Topik 3
- Teachers characters
- Principle of developing material
- Arranging Materials
- Methods of teaching and learning of English for Children
- Evaluation
- Final Test

As the tutors of the course, we met some difficulties to indicate the materials and the schedule of finishing each part of the material. Tutors found that there are some points need to redesign. **First**, the schedule is needed to point out in a spesific calender. It would make easy for the participants to remember what should they do next if the schedule is indicated the spesific information for them. The above home did not show any about the schedule. In introduction, tutor stated that this course will be conducting for 8 weeks. The course started from 29 April 2014 and it should be finished on 24 July 2014 when the participants should submit their final test. **Second**, tutor stated on the introduction that participants have to do two assignments during the course but tutors are not indicated when they should start to do the assignments. Moreover, there is no indicators which topics will include on both of the assignment. Some participants submit their assignments on the last minute before the final test. Tutor already marks and posted the grading two days after the due date of submitting the assignments. **Third**, Participants are not have any indications of the latest time for discussion 1. They still try to participate discussion 1 until 20 July 2014. It means that the participants just join the

first discussion when the final test will due on four days. **Fourth**, in the part of Welcome, it should not stated welcome when participants click welcome then they found the instruction to join chat 1. **Fifth**, it stated Topic 3 however there are no topics 1 and 2. The systematic of using thematically are not consistent. **Sixth**, time allotment is very important part of tutorial since it indicated the steps of starting and finishing each part of the material.

Thus, it has to be redesign the whole home in the schedule for making easy to participants and tutors on conducting MOOC efficiently. Moreover, by redesign the home of this course the participants will be easy to follow the course. Even this course is free but by the end of the course UT has a plan to give them certificate. Requirements for whom will get certificate is needed to define since there are 654 participants are participated however only some of them are active to participate in discussion, chat and do assignments and final test.

Below is a suggestion schedule that need to shown in the home of the course.

Table 3

Week	Topics	Due date
One:	Introduction	
	Literature review	
	Discussion 1	
	Chat 1	
Two:	Theory of teaching learning English for children	
	Discussion 2	
	Chat 2	
Three:	Students characteristics and elementary learners	
	Discussion 3	
	<b>Assignment 1</b>	
Four:	Teachers' characters for teaching children, language and culture and how to choose materials	
	Discussion 4	
	Chat 3	
Five:	Methods of teaching to children	
	Discussion 5	
	<b>Assignment 2</b>	
Six:	Evaluation	
	Discussion 6	
Seven:	Samples of test	
	Placement test	
	Chat 4	
Eight:	Final Test	

Suggestions for improving the introduction are needed to focus on the activities that need to attending by the participants. These suggestions are as followed:

1. You have to read all the materials before you try to participate on the discussion
2. You need to watch the whole videos since it will help you to understand the materials
3. You have to be active on the discussions



4. You are asking to participate in chatting to help you share ideas and getting ideas from your peer
5. You have to do the assignments during the MOOC
6. You have to do the final test and submit it on due date

### **Process of tutorial on MOOC**

As stated on introduction participants have to be active on attending the eight-week MOOC course. During the eight-week, participants have to be active on discussion and share ideas and opinions. There are about 614 participants on the first week of the MOOC and in last July it increased 654. The increasing participants are participating from the beginning of the course but they actually miss the real time discussion. While they send their ideas and opinions in first discussion their friends are move forward to the last discussion thus no one read or give a discussion on their participation. It means that they just participate without any communication even with the tutor since tutor has to go forward because of the time. This finding is needed to note for the decision makers since it would be difficult for tutor to give the mark for these participants. UT need to define some requirements on determining who should receive certificate of MOOC.

Participants on the discussion during the course are not more than 25% are active. The topic on each discussion is given based on the materials which are supported by videos, pictures and explanations. They are easy to undersand any of the topic of the discussion since tutor also supported them with some readings which are link to books or journals. Through a bit survey questions that tutor asked the participants about their comment on the materials “they are satisfied on learning the material because the explanations are simple and understandable. They add that the videos and a link readings are very helpful for them to understand”.

Tutor are also satisfied to read the participants role on discussions. They discuss the materials based on the readings and video. They can explain each of the topic of discussion based on their empirical experience. Even most of the participants are not teachers as Faculty of teachers training and education requirement to be the students of this Faculty, but they are having lot of experience of teaching their children or having fun with children on learning English. So, the discussions are conducting interesting between peers and tutors act as fasilitators as stated on the introduction. Thus, though the participants who participated only 25% of the total number of 654 but the discussion are fruitful for the active participants.

### **Process of Chat**

Chat on this course is conducting twice. The participants of this chat are not many only about 5% of them are participated. The problems are the time alotment is not appropriate to them to participate. Chat conducted on 09.00 – 10.00 a.m. Most of the participants are busy with their own task or job.

The topics for chat are related to the materials which already explained and supported by videos and readings as well. Eventhough, only a little number of participants are

participate but the chat is really well done and satisfied to whom participate. Survey showed that most of them have to do their own activities during the time allotment of chat.

### **Process of doing assignments**

There are two assignments for the participants to finish during the course. About 65 participants are doing assignments. Some of the participants are trying to answer the questions of assignments by writing the drafts and they are not satisfied to submit. Some of the participants are submitted and the result are satisfied. The assignments are essay tests and participants who submit their assignment are getting satisfied mark on it. Tutor always marked their assignment a day after the due date of submission.

Participants are satisfied when they received the feedback. Some of them are discussed between them. Some are asking to the tutor to make them understand the feedback and understand what are their problems on doing the assignment. The participants are eager to develop their understanding on the topic of the assignments.

### **Process of doing final test**

Final test is given on a week before the eight-week of the course. Participants are done it and it closed on the due date 24 July 2014. It was only about 15% of the total number of participants who already submit their final test. Tutors still on going to mark it. There are no comment on the final test since there is no survey on it. Some participants did the final test gradually. First, they do two of the questions and on other day they try to answer the third question until they finish on the due date. Some try to answer it straight away and submit.

Some participants have already done the drafts of their answers on the final test but they do not satisfied to submit it. Tutor still try to read and giving mark to the participants drafts. According to the tutor actually the participants are understandable the questions but they do not submit it. Further action of tutor need to do in the future MOOC for encourage them to finish their final test and submit it.

### **Profile of participants**

#### *Demographic*

Indonesia has seven big islands. The participants of MOOC are spread out on that islands. The big amount are from Java where the capital city of Indonesia is stated. The others are from the other island including the participants from abroad. This data showed that participants are involved the Indonesia archipelago. Not only Indonesian but also people from abroad are participate on UT MOOC.

Table 3

Islands	Number	Cities
Java	356	36
Kalimantan	27	8
Sumatera	47	11
Papua	2	1
Ambon	2	1
Kupang	1	1
Denpasar	4	1
Australia	1	1
Hong Kong	7	3
Arab	1	1

### *Backgrounds of Occupation*

Table 5

Occupation	Numbers
Students	57
Officer	39
Teachers	41
Housewives	17

The above data we get from the Introduction Forum. The participants who are students in university are not studied at English Department but they are study as mathematician, marine, informatic, and Primary school Teachers. Participants who are teachers are also not all of them English teachers but they are Mathematic teacher at Secondary school, Primary school, Microbiology teacher in High school, teacher in kindergarten and others. Some of the participants are housewives. According to them that they want to attend MOOC of English for children because they want to know the theory of teaching English for their children. Some of them have their own experience on teaching English to their children and they found that attending UT MOOC they got new knowledge, experience and they got information from their friends in MOOC about how they already teach their children or grandchildren.

### **Conclusion**

The exploration of this paper is about MOOC in Universitas Terbuka. Participants who participate on the English course through MOOC are huge about 654. This number is about triple of the Tutorial Online participants of English course. Arranging the materials and all activities on MOOC is better to put on a special schedule or calendar. Tutor needs to reschedule the time for Chatting since they are very busy in the morning. Tutor needs to arrange the forum by participate on it, thus the participants will get feedback or enrich by their tutor opinions and ideas. The participants of MOOC are varies of their background and jobs thus the discussions are enlarge and scope are most focused on their experiences. They feel that they find a very good experience while attending MOOC. UT needs to redesign and rearrange the MOOC programs for the future.

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# Self-managed learning via Weblog: Design and implementation

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**Abstract:** Weblogs (or blogs) usually contain diary style content, with updates posted on a regular basis and displayed in reverse chronological order controlled by a single author. The blogs can be publicly accessed by anyone or by invitation from the blog's author. The content or use of a blog is the choice of the author and may include news, updates, articles, and reflections. The small but developing literature on web logging underscores its potential as an effective learning resource for use in higher education. Some advantages of blog for learning include assisting students to become subject-matter experts through a process of regular scouring, filtering and posting, increasing student interest and ownership in learning, giving students legitimate chances to participate and acculturating them into a community of practice and providing opportunities for diverse perspectives. However, the use of the blog for open distance learning is very much limited as the open universities prefer to use their own learning management systems or other online platforms to deliver the teaching and learning activities. This paper contributes to these discussions through a case study of the authors' experience with the on-going development of an educational blogging resource for use in an undergraduate IT subject. Using the instructional strategy of independent study and indirect instruction to support the learner-centered pedagogies, the author believe the elements of content, interactivity, collaboration and assessment are the pillars to make an education-based blog for adult learners to support their self-managed learning. Detailing the theoretical aims, design, implementation and students' evaluation of the blog, the paper puts forward the argument for the educational use-value of blogging as a platform to support self-managed learning for adult learners in the open and distance learning environment.

Keywords: Adult Learners, Self-managed Learning, Weblog

## Introduction

Weblogs (or blogs) usually contain diary style content, with updates posted on a regular basis and displayed in reverse chronological order controlled by a single author. The blogs can be publicly accessed by anyone or by invitation from the blog's author. The content or use of a blog is the choice of the author and may include news, updates, articles, and reflections. According to Blood (2000), the phrase 'web log' was first used in 1997 and the shortened version by Merholz in 1999 (Merholz, 2002). Blogging as a phenomenon started to increase steadily after this time, and then there was an explosion in the number of blogs when the first free, do it yourself blogging tools became available in mid-1999, most notably *Blogger.com*. Herring, Scheidt, Wright and Bonus (2005) identified three blog genres: personal journals, filter blogs, and knowledge blogs (K-logs). The personal journal blogs were a highly individualistic; while the K-logs resembled learning or research journals that were used to record learning processes or artifacts. The academic blogs in our study can be viewed as K-logs, which are significantly different from personal journal blogs.

## **The Problem**

The majority of the studies conducted on blogs were interested in either the general blogger population (e.g. Hsu & Lin, 2008; Nardi, Shiano, Gumbrecht & Swartz, 2004; Stefanone & Jang, 2007) or blogging as personal or leisure-related activities. Although three studies - Trevino (2005), Guadagno, Okdie and Eno (2008), and Wang, Lin, and Liao (2012) - involved university students, their focus was not on blogging for learning purposes. The use of the blog for open distance learning is very much limited as the open universities prefer to use their own learning management systems or other online platforms to deliver the teaching and learning activities. Within the growing body of literature on the educational use of blogs, little attention has been paid to the design and implementation of knowledge-blog for adult learners especially to cater for their self-managed learning (SML), which is an important component in blended pedagogy. Garrison (1997) and Knowles, Holton, and Swanson (1998), state that self-directed learning is part and parcel of the psychological and social development of adulthood.

## **Objective**

The objective of the paper is to:

- Propose a framework for a learning blog to support self-managed learning (SML) of adult learners;
- Implement the above framework; *and*
- Explore adult learners' perceptions of the learning blog in terms of any impact they considered it made on their learning, preferences and to which extent the blog supports their self-managed learning.

While acknowledging the fact that the design of this study was not experimental, it nevertheless offers a means or case study through which the researchers can assess the value of using the education-based blog to support SML among the adult learners.

## **Significant of the Study**

Compared to asynchronous discussion forums such as newsgroups and bulletin boards, Ferdig & Trammel (2004) contend that blogs are more successful in promoting learning as it offers greater flexibility in teaching and learning. Thus, this paper will validate whether blogs can be useful learning platform for the adult learners.

## **Methodology: Case Study Approach**

This study adopted an interpretive case study methodology approach. Erickson (1986, pp. 119-161) described interpretive case studies as:

*... the intensive investigation of a single object of social inquiry such as a classroom ... and that it holds major advantages in that it allows the immersion of oneself in the dynamics of a single social entity and enables the uncovering of events or processes that one might miss with more superficial methods.*

Burns (1997) further commented that the case studies have a number of purposes or functions within educational research. Due to their intense and subjective nature, he stated that they are particularly suited to acting as preliminaries to major investigations by providing a "source of hypothesis for future research" (Burns, 1997, p. 365) or by assisting in developing deeper understanding "of the class of events from which the case has been drawn". The methodology in this instance allowed the researchers to gain deeper insights into any value the blog held from the students' perspective. Interpretive case study approach had also been used by Falloon (2011) for his study concerning the online learning.

### **Data Collection**

The blog was implemented for the subject *CBOP3203 - Object Oriented Programming* (CS1 subject) since Jan 2014 onwards using the blended pedagogy. This subject is an IT-based subject. At the end of the semester May 2014, all students taking this course (65 of them; 26 to 48 years old) have been given online questionnaire and 24 learners (36.9% of the population) responded to the survey. The questionnaire had three sections, with the first section eliciting students' perceptions of their learning experience in the blog. There were four items in this section. The second section had one item which measured students' perception of the extent to which the blog helped their self-managed learning. The third section elicited students' perceptions of their preferences for the blog over the face to face interactions. There were two items in this section. Data was analysed using descriptive statistics of mean scores. All items were measured on a Likert scale from 1 (strongly disagree) to 5 (strongly agree).

### **Proposed Framework**

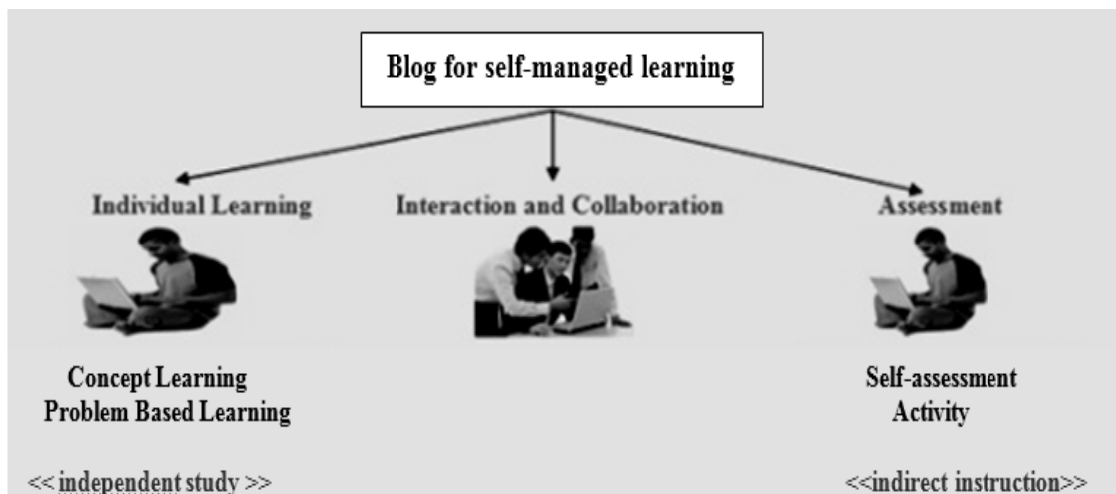
Many experts do not believe that a unilateral approach to using technology to support learning will be successful. Instead, based on the author's own experiences in conducting online courses for almost 10 years and through reference to the work done by Jochems, Koper and Merrienboer (2003), and Garrison, Anderson and Archer (2001), online learning in the form of the blog will be effective if it is implemented in an integrated manner that incorporates the following FIVE critical principles, so that it empowers the students' learning:

1. The blog has to be learner-centred, whereby learners become the primary focus of attention, as opposed to the traditional emphasis upon the instructors.
2. The best approach to teaching and learning is the bi-instructional method where e-learning is utilised for *independent study* to support self-managed learning (SML) and *indirect instruction* to support peer collaboration, interaction and eliminate isolation.
3. Assessment must become an integral part of the blog so that the learners would be able to self-assess themselves and think of ways to improve their assessment. Assessment is an integral part of learning. A good learning environment should allow the learners to test their knowledge after performing learning activities or at intervals
4. A successful blog must support instructor and cognitive presences which are two important components in the community of inquiry (CoI) model



5. A successful blog must support learner-learner (collaboration), learner-instructor and learner-content interactions. Collaboration and interaction allows the knowledge comprehension and construction through social process (Preston, 2005).

The FIVE principles given above are essential so that all the aspects of online learning be incorporated, in order to attain the goals of a learning blog. In addition, for blog to be effective, it must be combined with various forms of interactions which include student-student, student-content and student-instructor interactions. Figure 1 shows the framework for implementing the concept of the learning blog for SML based on these principles.

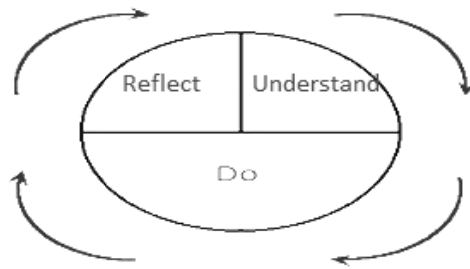


**Figure 1:** The proposed framework of the learning blog

Through this framework, maximum learning opportunities are provided via integration of *Recorded Tutorials* and *Recorded Lectures* for problem-based learning and knowledge (concept) learning respectively, as well as other supplementary resources such as *Assessment* and *Activity* to support assessment. Using this approach, learners can access the content anytime and anywhere, enabling them to enjoy the learning experience via blog. In order to stimulate the learning, the blog contains less words but more video and activities to sustain the learners' attention.

### Reflect-Understand-Do Cycle

In developing the learning blog to support the principles highlighted above, we have adopted "Reflect-Understand-Do" thinking cycle in a continuous manner to reinforce learning among the learners for the particular subject (Figure 2).



blog

Using the instructional strategy of independent study and indirect instruction to support the learner-centered pedagogies, we believe the elements of content, interactivity, collaboration and assessment are the pillars for an effective education-based blog for adult learners to support their self-managed learning. In this regard, we believe:

1. Learning has to be learner-centered whereby learners would be the primary focus of attention as opposed to the traditional emphasis on the instructors.
2. Assessment must become an integral part of learning so that the learners would be able to self-assess themselves and think of ways to improve their assessment

In order to achieve these, the following learning materials are provided in the blog:

- Lesson overview (*reflect*)
- Recorded Tutorials from real classroom (*understand*)
- Recorded Lectures (*understand*)
- Recorded Lecture with engagements (*understand and do*)
- Flash-based activities (*do*)

The tools mentioned above are described in the next section.

## **Tools**

The tools that are available in the blog are described below.

### ***Lesson overview***

Lesson overview (Figure 3) is provided so that the learners can reflect on the topic before embarking on the video lecture. Lesson overview supports the “reflect” component in the “Reflect-Understand-Do” cycle.



**Figure 3: Lesson overview**

***Recorded Tutorials (iTutorial)***

*iTutorial* (Figure 4) are the tutorials recorded from the real tutorials. In this tutorial, the teaching approach is “problem-based learning (PBL)” so that the learners can learn on how the concepts are applied in solving a problem. Recorded tutorials support the “understand” component in the “Reflect-Understand-Do” cycle.



**Figure 4: *iTutorial***

### ***Recorded Lectures (iLecture)***

Recorded tutorials or *iLecture* (Figure 5) are lectures recorded from the studio. In this learning material, the teaching approach is “concept-based ” so that the learners understand important concepts covered in the subject. *iLectures* support the “understand” component in the “Reflect-Understand-Do” cycle.



**Figure 5: *iLectures***

### ***Recorded Lectures with Engagement (iLecture+engage)***

*iLecture+engage* (Figure 6a) is similar to *iLecture* described above. However, *iLecture+engage* contains multiple quizzes (Figure 6b) at certain intervals in one video lesson. Learners cannot proceed to the next part of lecture without attempting the quiz. This will allow the learners to immediately test their understanding of the sub-concept covered in that video. These provide a kind of engagement between the contents and the learners. *iLecture+engage* support the “understand” and “do” components in the “Reflect-Understand-Do” cycle.



Figure 6a: *iLecture+engage*

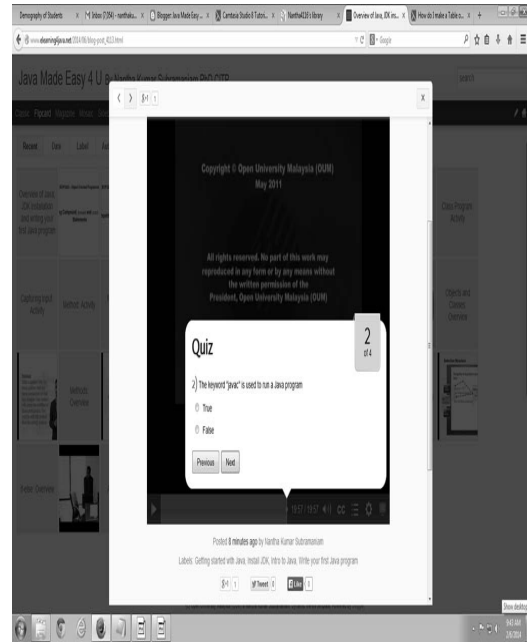


Figure 6a: Quizzes in *iLecture+engage*

### Flash-bash activities (*iAssessment*)

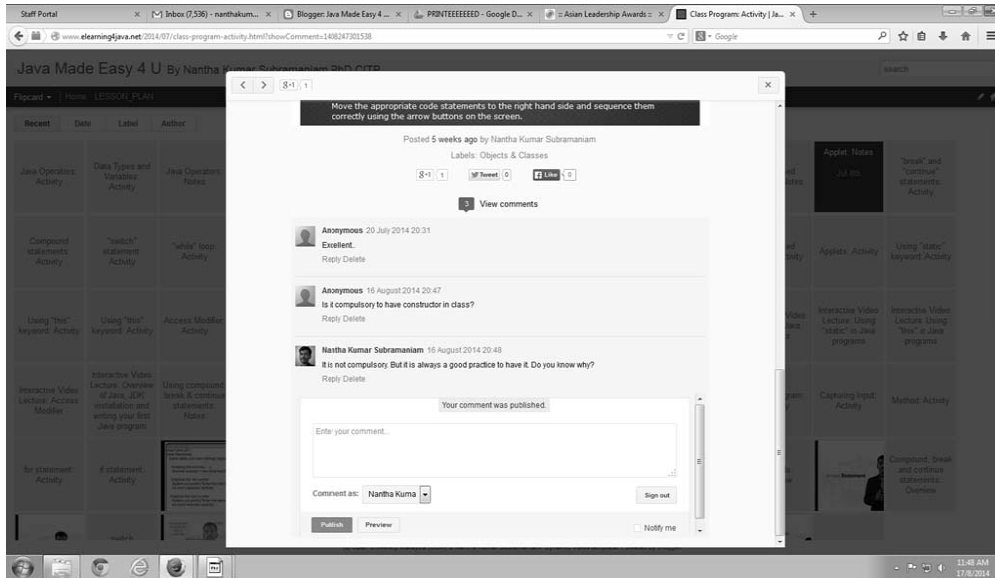
*iAssessment* (Figure 7) is the flash-based activities that are loaded into the blog. *iActivity* allows the learners to test their understanding of the content by engaging in active interaction with the activity. *iAssessment* support the “do” component in the “Reflect-Understand-Do” cycle.



Figure 7: Assessment in the form of flash-based activity

## Interaction and collaboration

Interaction between learner-instructor and learner-learner and collaboration is carried through the “comments” facility available in the blog (Figure 8). This facility is available for all the learning materials (*iTutorial*, *iLectures*, *iLecture+engage*, *iAssessment*) loaded in the blog.



**Figure 8:** Using the blog’s “comment” facility to support interaction and collaboration

## Implementation

The blog was implemented for the subject *CBOP3203 - Object Oriented Programming* (CS1 subject) since Jan 2014 onwards using the blended pedagogy. This subject is an IT-based subject. The blog was developed using the Blogger (*Blogger.com*). Blogger is Google’s free tool for creating blogs. We have adopted the dynamic view (which is one of the views provided in Blogger) (Figure 9). We have chosen the dynamic view as it makes it easier to read the blogs and easy to discover posts written long ago that the learners may not have read. Each topic in the subject will have its own *iLecture* or *iLecture+engage* and at least one *iAssessment*. On the other hand, *iTutorial* will encompass multiple topics in order to support the PBL. The blog can be accessed at [www.elearning4java.net](http://www.elearning4java.net) (public access). Currently it has more than 80 posts from the author who is the instructor of the course. As of August 30, 2014, the blog has been viewed more than 5600 times from the various countries since its inception in August 2013. The blog comes with a table of contents that will allow the learner to choose their preferred topics (Figure 10). In addition, a lesson plan is also provided to give the learners the path that needs to be taken for the learning. This make it more guided kind of learning for the learners. Currently, the blog contains *iTutorials*, *iLecture* and *iLecture+engage* recordings with more than 800 minutes in combined, notes and 30 *iAssessments*.

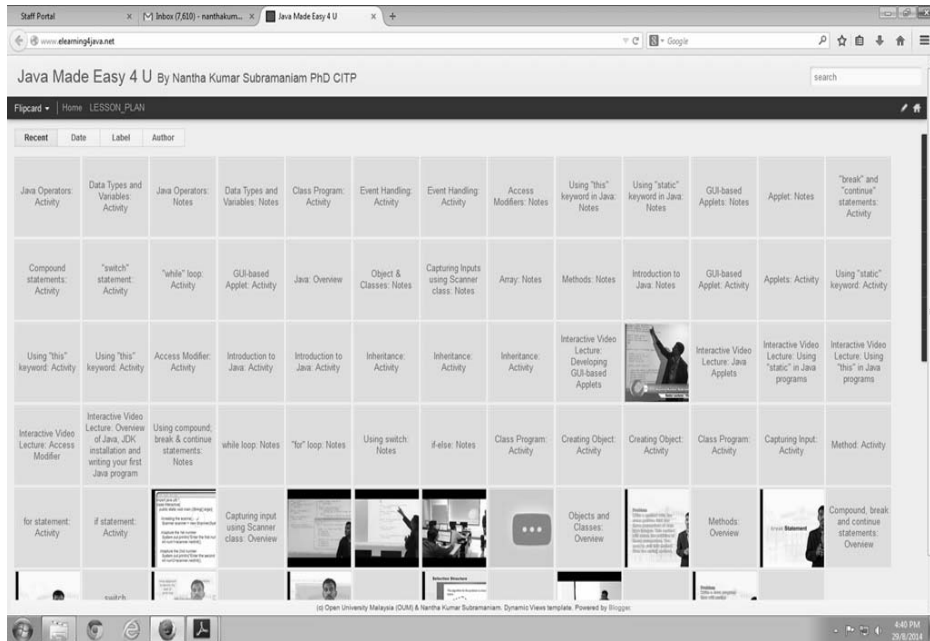


Figure 9: Dynamic view of the learning blog



Figure 10: Table of contents for easy reference of the preferred topics

## Findings and Discussion

As stated earlier in the data collection section, data was collected for students' perceptions of their learning, self-managed learning and preference using a questionnaire. The mean score for all the items in the questionnaire are shown in Table 1.

**Table 1:** Mean score of the items for the adult learners' perception

	ITEMS	MEAN SCORE (n=24)
<b>LEARNING</b>		
1	I experience a higher level of learning / understanding of the lesson through blog for this subject.	3.86
2	I am able to achieve the learning outcomes at the end of using the blog for this subject.	3.77
3	I experience learning the subject in a new way through the blog for this subject.	4.01
4	My knowledge on the subject matter increases after going through the blog	3.83
<b>SELF-MANAGED LEARNING</b>		
5	Blog for CBOP3203 helps me a lot for my self-managed learning	4.23
<b>PREFERENCE</b>		
6	Overall, I find that the blog is very useful in learning the subject – CBOP3203.	4.33
7	There is no need for Face-to-Face tutorials for this subject as a result of having this blog for CBOP3203	2.41

Note: 1 = strongly disagree and 5 = strongly agree

The result shows that the learners gave responses between 2.41 to 4.33 on the Likert scale of 1 – 5 which indicates good responses for all the sections in the questionnaire except for the item 7. Item 7 was not encouraging as it was rated 2.41 on the Likert scale. This indicates that there are areas for improvements in the dynamics of the blog and students still preferred face to face tutorials over the blog even though they find the blog very useful in learning of the subject. This could be in line with the Asian culture where attendance in a classroom is considered a must in the teaching-learning process (Miliszewska, 2007). In addition, Media Richness Theory (Daft & Lengel, 1986) opined that face-to-face communication is considered to be the richest, while other forms of media are thought to be less learner based since they have fewer contextual cues and slower feedback compared to face-to-face (Daft & Lengel, 1986). Thus, students even in the online learning environment naturally perceived face-to-face discussion to be faster, easier, and more convenient. Nevertheless, the findings have indicated that the blog had supported the adult learners' SML and this has been translated into an increased of knowledge on the subject matter after going through the blog (as indicated by good responses for item 1 and item 4 in Table 1).



## Conclusion

Blogs remain as an alien tool in open and distance learning. However, the dynamism, immediacy and commentary based system of blogging is very much suitable to support SML among the adult learners as demonstrated in this paper. Blog provides the natural tendency for reflection and analysis on the part of the student by phasing their own learning activities. The blogs have enriched the learning experience and provided an opportunity for learners to shift from the surface to deeper levels of learning. It is interesting to note that the contextualization of learning through hypertext links (supported via *tags* facility in blogs) to other materials encourages revisiting and revision of learned concepts, enriching the learning experience. Although this feature is also available in LMS, blogs go further by enhancing learners' interest and ownership in learning, giving learners legitimate chances to participate and acculturate them into a community of practice. Blogs have given ownership to the learners over their own learning and an authentic voice allowing them to articulate their need and inform their peers of their own learning.

Open universities should consider seriously on the ways to adopt blogs for learning purposes or make it a part of LMS. In our future study, we plan to make the learners the subject matter experts in the blog by asking them to create their own contents. The use of the blogs will facilitate knowledge construction among learners and their peers. This may contribute to learners being motivated in their own learning and view themselves as knowledge creators.

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# **Making it work: Teaching and learning speech communication at a distance**

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## **Abstract**

Guided by Moore's discussion of the three kinds of interaction (1989) and the rapid growth of information and communication technologies (ICT), distance education (DE) teachers have consistently explored the use of online tools and resources to facilitate learning in the virtual classroom and address the issue of transactional distance through activities that encourage interaction. The available options become vast with each development in ICT, but previous studies have provided teachers with references in choosing the most appropriate technology and or platform to maximise interaction and communication in the context of open and distance e-learning. The shift from structural to transactional issues in related literature has highlighted the use of web-based audio and video conference platforms for synchronous learning as a significant area of study though asynchronous learning activities have also been explored, especially with the increasing use of open educational resources (OERs) to make online teaching and learning more successful. Still, combining synchronous and asynchronous activities to establish and maintain quality interaction and facilitate learning depends on the needs and demands of a particular online course. This paper reflects on the experience of teaching a Speech Communication course online and presents the different forms of synchronous and asynchronous learning activities that may be adopted to facilitate learner-content, learner-teacher, and learner-learner interactions. Analysing the teacher's observations and the learners' perceptions based on survey responses, this paper particularly describes the advantages and challenges of using open educational resources (OERs), video sharing platforms, and web-based audio/video conference platforms to teach and learn the principles of Speech Communication online. The conclusions made may serve as a guide not just for instructors of online courses in speech communication and public speaking but also for DE teachers who facilitate skills-based online courses.

**Keywords:** computer-mediated communication; interactions; web-based video sharing and conference platforms

## **Background**

With the rapid growth of information and communication technologies (ICT), distance education (DE) teachers have consistently explored the use of online tools and resources to facilitate learning in the virtual classroom. The available options become vast with each development in ICT, but one constant challenge lies in finding the more appropriate strategies and ways to use the online tools and resources, particularly when the courses are primarily skills-based or performance-based ones, such as Public Speaking, Practicum or Internship, and Physical Education courses. If one is to look at the difference of teaching such courses in the traditional university set up from teaching them in the DE setting, obviously, adjustments are already made based on the change in the main medium of communication. Because the extent of face-to-face communication which can be initiated with the students is limited in DE, there is a need to be aware of

what platforms and software to use at one's disposal. However, the adjustments go beyond deciding which medium to use. There is also an effort to learn and understand why each platform should be used and how.

Among the Communication courses offered in DE setting is Speech Communication, and this paper presents the experience of teaching the course online and highlights the different forms of synchronous and asynchronous learning activities used in an attempt to facilitate interaction in the virtual classroom based on Moore's (1989) classification: *learner-content*, *learner-teacher*, and *learner-learner interactions*. Moreover, it also reflects on the experience of using online video conference and video sharing platforms from the perspective of both the teacher and the students.

Specifically, this study aims to:

1. Describe the key learning activities done in the Speech Communication virtual classroom with the aid of online platforms;
2. Present the teacher's and students' perceptions on the use of online platforms in the said course; and,
3. Provide recommendations on teaching skills-based courses online based on the reflections made about the Speech Communication classroom experiences

Speech Communication or COMM 3 is a general education course which aims to train the students in developing a working knowledge of how the theories and principles of speaking and listening can be incorporated effectively in real communication situations. In the COMM 3 class used for this study, the major course requirements included having the learners record a demonstration speech, conduct a one-on-one interview, and deliver a persuasive speech. Synchronous and asynchronous activities were done to help the students prepare for these major requirements and to facilitate the actual activities for the major requirements as well. Like the other courses offered in the university, the COMM 3 classroom was a virtual one and appeared in the form of a course site where all resources were uploaded and the regular activities were conducted.

### Review of Literature

To serve as the theoretical foundations, Moore's theory of transactional distance, the three kinds of interaction, related research on open educational resources (OERs) and the use of web-based video-conferencing and video-sharing platforms in online teaching and learning are reviewed for and discussed in this study.

### Transactional Distance and Interaction in DE

Among the distance education theories that have emerged, it is perhaps Moore's theory of transactional distance (1993) that has served as a solid basis for many researchers and DE teachers in analysing and putting interaction's role at the centre of the online classroom. Transactional distance, according to Moore (1993), refers to the psychological and communications space that occur primarily because of the kind of separation that DE teachers have from the learners—a space that may bring “potential misunderstanding between the inputs of the instructor and those of the learner.” As a way to cross this psychological and communications space, Moore (1993) presented dialogue, structure, and learner autonomy as the variables to consider in teaching and in learning at a distance. The interplay or relationship of these three variables can lessen

or diminish the transactional distance that learners may feel from their teacher (Shearer, 2009; Woods & Baker, 2004; Anderson & Garrison, 1995; Moore, 1993). It is also in the relationship of these three variables that the concept of interaction plays a crucial role, in which Moore (1989) discussed three kinds: learner-content interaction, learner-teacher interaction, and learner-learner interaction. *Learner-content interaction* occurs when the students consider, use, and process the information presented to them through the resources, in whatever form, they are provided with. The main goal of such interaction is to “stimulate, motivate and facilitate educational activities and use of learning strategies” in the virtual classroom (Anderson & Garrison, 1995). *Learner-instructor interaction* is the two-way communication between the instructor and the students in a course. For Woods and Baker (2004), this kind of interaction “occurs via computer-mediated communication and is not strictly limited to instructional communication that occurs during the educational experience, but may include advising, offline communication, and personal dialogue.” Last, *learner-learner interaction* is the interpersonal and or group communication between two or more students in a course. This kind of interaction typically happens through asynchronous forms mediated by the computer, but may cover any kind of interaction done synchronously as well. Anderson (2010) went beyond the focus on choosing the activities that will promote these kinds of interaction and asserted, through the *Learning Equivalency Theory*, that “creating high-quality levels of any one type of interaction would be sufficient to create high quality learning experience.... If this is done, the other two could be reduced, with little or no impact on learning outcomes or attitudes.”

#### Use of Open Educational Resources

In the recent years, the use and sharing of a variety of open educational resources or OERs, intentionally and carefully chosen to suit the needs of a specific course, has been extensively promoted, and rightfully so. According to Glennie, Harley, and Butcher (2012), “There is a plethora of work on the history and promise of OER in relation to enhanced learning experiences for greater numbers of students at reduced cost.” It is then with this logic and benefits in mind that such practice has been steadily encouraged in open and distance universities across the globe.

#### Use of Technologies in Distance Education

For Anderson (2003), audio and video conferencing may have the potential to provide high levels of learning if the conference design supports high levels of learner-learner interaction and not used as a venue for delivering lectures. However, this does not mean that the platform may not be used to establish at least medium levels of learner-teacher interaction.

McKee (2010) made a general observation in her reflections on teaching at a distance when she stated that the practice of “audio- and video-conferencing addressed transactional distance issues by adding the synchronous element to learning that only face-to-face education had afforded previously.” However, she noted the constant need to address the technical glitches and access issues and to exert effort in learning the new technologies which may allow such activities in the online class. Still, the overall recommendation is to learn to make use of these tools effectively for a more successful distance teaching and learning.

In the study made by Kuo, Walker, Belland, Schroder, and Kuo (2014) about the integration of synchronous sessions facilitated by a conference platform, they found out that both learner-learner and learner-instructor interactions were significant predictors of student satisfaction. These interactions were made possible by the use of the software, Interwise. In this sense, the platform was used to facilitate interactions and the students' attitude toward it proved to be positive.

Similarly, Grant and Cheon (2007), attempted to study the value of using synchronous conferencing to instruction and students and found out that the students also had positive perceptions in using both the audio and video conferencing in their classes but viewed technical difficulties as the largest barrier. The activity also made positive impact to instruction as it succeeded in capturing students' attention.

In the same research conducted by Grant and Cheon (2007), they summarized and enumerated four critical factors to consider when implementing synchronous conferencing: (a) technical aspects, specifically, the quality of video and audio, (b) training period, (c) teaching strategies, and (d) opportunities for face-to-face meeting.

These factors were closely considered in the reflections for this current study, but the last factor became opportunities for online, synchronous meeting since COMM 3 is delivered purely online.

#### Methods, Results and Discussion

This study is a narrative and a case study of the experiences in the Speech Communication or COMM 3 virtual classroom and the use of educational resources and online platforms to facilitate the class activities as an attempt to promote different kinds of interaction. The course was offered in the last term of the academic year 2013-2014, with a course site that was made available through the university portal from January to early April, 2014 using MOODLE, the platform used by the university since 2007 (Librero, 2010).

#### Speech Communication Course

The course requirements included submitting major assignments in the form of a recorded demonstration speech, a recorded one-on-one interview, and a persuasive speech delivered synchronously as the application of and outputs created based on the speech communication principles in the course modules. Figure 1 shows the course outline followed by COMM 3 (please see Appendix list). In addition, the students were asked to do the following:

1. participate in two major discussion forums to discuss the principles of speech communication
2. submit speech plans and interview guides in preparation for the major assignments
3. participate in the forums to discuss the submitted speech plans and guides and additional guidelines for the major assignments
4. answer short exercises based on the students' understanding of the resources
5. pass the final exam

This study focuses on the process of accomplishing the major assignments and on the role of the online platforms in relation to the first four tasks above.

### Online Platforms

The course site in the university portal, powered by MOODLE, served as the virtual classroom of the teacher and students where the resources were uploaded or linked and the discussion forums and exercises were conducted. Submission bins were also made available for the written outputs such as the speech plan for the demonstration and persuasive speeches, the speech transcripts, and the interview guide and transcript. In addition to this, external tools were also used. Specifically, Google+ Hangouts was the platform used for synchronous activities and Vimeo was used as the video-sharing platform for the students' recorded speeches and interviews.

### Speech Communication Students

Initially, there were 82 students enrolled in COMM 3, but 16 of these students did not participate in any of the course activities and were considered "absent" from the virtual classroom since the term started. These students are a mix of full-time and part-time or working students. About 83% of the 66 remaining students (55 students) may be considered very familiar with navigating the basic features of the course sites as they had been undergraduate students of the university for at least two years before this study. Nevertheless, detailed instructions were posted each week in the course site, along with the course guide and assignment guides, to assist the students further as they go through the activities for the whole term.

In terms of using the external tools, the students were asked to create a Vimeo account, share it to their classmates, and join the Vimeo group created by the teacher specifically for the COMM 3 class as the students explore the video sharing features of the platform. They were also asked to make a Google+ account, if they did not have one yet, and try the video call feature of Google+ Hangouts (or simply, Hangouts) casually with their friends at their most convenient time during the first 3 weeks of the term.

### Conducting the Major Activities and Facilitating Interactions

COMM 3 uses "Speech Communication," a book written by Agravante and Buenaventura and published by UP Open University last 1999, as a main resource. However, OERs were used to supplement the module discussions in the book. Listening exercises available online, YouTube and Slide Share links showing sample speeches and delivery guidelines, and handouts prepared by the teacher based on updated speech communication readings online were provided to the students in the course site. They were given practice exercises which were automatically checked in the course site to test their understanding of these resources. There were also graded exercises, at least two of which are listening exercises from an OER. The exercises were usually only 5-10 items short. All these were done before the students were asked to submit the major assignments. Primarily, these activities attempted to provide learner-content interactions.

For the submission of the two major assignments, recorded delivery of a demonstration speech and a recorded one-on-one interview with the student's chosen subject or interviewee, the course site was used to submit the written outputs. Before submitting

the actual speech and the interview, discussion forums were made available to post the teacher's clarifications and the student's self-assessment that may improve the speech plan and interview guide. Other students were also encouraged to post their comments on another student's speech or interview plan. Ideally, these comments and initial reactions were supposed to be reflected in the actual assignment outputs; however, the final recorded performances still depended on the student's final decision. Vimeo was used to share the video clips of the actual speech and the interview. They were then assigned to assess the works of 1-2 classmates following a set of assessment rubrics. The activities under these two assignments, such as the asynchronous online discussions and the few exchange of comments in the Vimeo clips provided opportunities for learner-learner and learner-teacher interactions.

As an additional learning activity, mock or practice Hangouts sessions or video conferences were also set for the students to learn the basic features of the platform. In these mock sessions, the students were given time slots to choose from to join a 20-30-minute synchronous discussion with 2-4 classmates and the teacher. The synchronous sessions were about navigating Hangouts and participating in a group video-call. However, clarifications regarding module lessons, brief discussions of performances, specifically planning and delivering the speeches and interviews, and self-assessment highlights, as supplement to the discussion forums done in the course site, were also covered in these optional sessions. Detailed written instructions on using Hangouts were also posted and the speech plans and interview guides with the teacher's initial comments were returned and uploaded in the course site, mostly for the sake of those who were not able to join these synchronous sessions.

For the submission of the last assignment, the students were asked to submit their speech plans in the course site and after an asynchronous discussion forum discussing the speech plans' strengths and weaknesses, in relation to the principles of effective speech communication, the students were asked to participate in a Hangouts session with 2-3 classmates and the teacher to deliver their speeches and discuss the highlights of their peer assessment. Each session lasted an hour. Apart from the oral discussion of the assessment, they were also asked to submit a written assessment of each other's works.

In both the mock Hangouts and the Hangouts session set for the synchronous delivery of the persuasive speech, there were instances where the students were left to interact and chat on their own for a few minutes before the teacher starts joining the sessions.

### Survey

Out of the 66 remaining students who were able to finish the course, 28 students or about 42% participated in the online survey to share their impressions, attitudes, and insights regarding the use of the online platforms in COMM 3. The survey was first made and conducted online through the course site during the last two weeks of the term. It contained 12 items asking about the students' background and impressions on the use of Vimeo and Google+ Hangouts as external platforms. The questionnaire was then improved using Google Forms, expanded into 21 items, and administered about three months after the last main activity in COMM 3. Based on their responses, the online



platforms served not just as the medium to show and share the students' works, but also as tools to facilitate interaction and assessment activities.

### Students' Perceptions and Reflections

The following presents the summary of the students' perceptions regarding the use of Vimeo and Google+ Hangouts:

#### 1. On the suitability of Hangouts in COMM 3

All students find the use of Hangouts appropriate for the activities in COMM 3. Their reasons for saying so may be summarized below.

- a. It's a platform that is easy to navigate and can provide relatively clear video and sound quality, which suits the needs of the course.  
Some students noted Hangouts' suitability with the nature of the course and the fact that they were provided with a venue for "actual" practice.
- b. It keeps them motivated.  
Some students believe that using Hangouts made the learning more fun and interactive. They felt that seeing the teacher and peers "come to life" as they discussed thoughts and opinions live (in real time) served a great supplement to the forum discussions.
- c. It offers a convenient way to connect with both the teacher and peers.  
Some students appreciated the fact that Hangouts can be easily accessed anytime anywhere and can include more than 2 participants at a time using almost any device—whether a desktop computer, a laptop, or even their mobile devices—provided they have internet connection and a built-in or external camera and microphone. They also noted that the platform still manages to appear as a formal online platform compared with other tools available online that also have instant messaging and audio-video call features (like some social networking sites).
- d. It can facilitate activities that may be expected from any online courses.  
A few students shared their expectations of what courses should be like based on their experiences in other online courses provided by other institutions or educational technology companies like Coursera and stated that the synchronous activities facilitated by Hangouts may be likened to the activities in these courses.

#### 2. On their realizations and insights after using Vimeo and Hangouts in COMM 3

The students' insights in using Vimeo and Hangouts may be summarized into three:

- a. The activities facilitated by these platforms (Vimeo for the asynchronous activities and Hangouts for the synchronous ones), may be viewed not just a way to witness performances but also as a venue for self- and peer analysis of performance and learning.
- b. Similarly, the activities may be seen as a form of a healthy challenge. It serves as a motivation to continue improving, especially because these activities allow the students to interact with peers.
- c. The platforms are tools that can be maximized to beat some challenges of distance learning, particularly those that concern transactional issues.

3. On possible factors that may affect the outcome of using Hangouts in any undergraduate course like COMM 3

Despite citing the factors that make Hangouts work as a video conference tool, the students also recognize the challenges that using such platform may entail. Figure 2 shows that majority (86%) of the students view the schedule of both the teacher and the students as a main factor in determining the success or failure of using Hangouts to provide a venue for learner-learner and learner-teacher interactions.

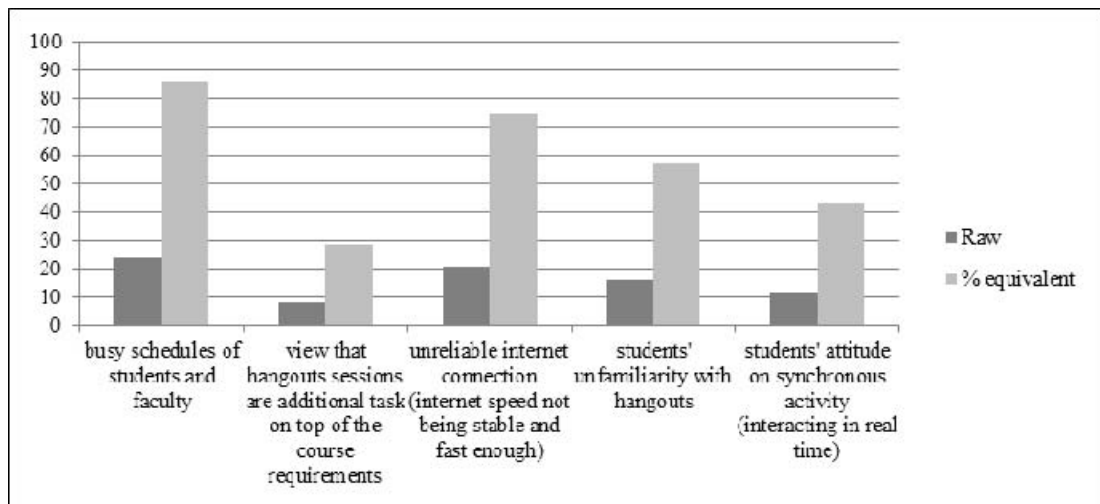


Figure 2 Factors affecting the success of Hangouts

This result may reflect the students' recognition of the challenge in setting up such synchronous activity in the DE setting and willingness of both the teacher and the students to allot time may already be a step closer to making the endeavour a success.

#### Teacher's Reflections and Recommendations

The succeeding items present the summary of the teacher's reflections and recommendations on how to make things work when handling a performance- or skills-based course like Speech Communication as a DE course.

1. On the advantages and challenges of using OERs

The fact that well-prepared and apt resources in varied forms have been extensively used in online courses may mean this practice has slowly but steadily established its worth in the context of distance teaching and learning. In the case of COMM 3, the advantage lies on OERs' ability to provide resources in more interesting and interactive forms such as video clips, interactive exercises, and short handouts from diverse set of subject experts.

The challenge then is to filter and carefully choose from the wide range of resources available out there. One should take into account the nature of the topic at hand and the learning outcomes to be achieved when deciding what resources to incorporate.

Finally, comprehensive but concise study guides should also be prepared to present to the students how the chosen resources should be used.

2. On video sharing platforms and web-based video conference platforms

DE teachers should seriously consider using Vimeo and Google+ Hangouts, or any equivalent video-sharing and video-conference platforms, as technological tools to enhance teaching. With a clear set of instructions, sharing of outputs through Vimeo may provide an opportunity for the students to monitor and assess their performances closely and take it as a step towards further improvement. The same goes for the use of Hangouts. Provided that there is a clear set of guidelines on how to use the platform and ample amount of orientation and or training is given to the students, the platform may promote high levels of learner-teacher, but more importantly, learner-learner interactions.

Adopting the factors mentioned in previous research, the challenge lies on the preparation before conducting the actual activities using the platforms.

- a. Technical aspect, specifically the quality of video and audio  
Students should be carefully guided as to what technical concepts and practice they should understand and do before starting to use the platforms.
- b. Training period  
Students should be given enough time to explore the platforms' features and be familiar with using them before any major activities are done.
- c. Opportunities for synchronous meetings  
Setting up manageable time slots or schedule that all kinds of students may participate in should then be the basis whether they can push through with the synchronous sessions or rely on meaningful asynchronous activities alone.
- d. Teaching strategies  
At the heart of it all, teachers should carefully design learning activities using teaching strategies that may incorporate video sharing or video conferencing platforms for teaching specific parts of skills-based or performance-based course, depending on the target learning outcomes.

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## Appendix

### Speech Communication (COMM 3) Course Outline

- I. Overview: Nature of Speech Communication
- II. Listening
  - A. Nature of Listening
  - B. Techniques for Effective Listening
- III. Intrapersonal Communication
- IV. Components of the Communication process
  - A. Using Language to Communicate
  - B. Using the Body to Communicate
    - 1. Nature of nonverbal symbols
    - 2. Effective and ethical use of nonverbal symbols in speech communication
  - C. Using the Voice to Communicate
    - 1. Factors affecting the speaking voice
    - 2. Characteristics of an effective speaking voice
    - 3. Articulation and pronunciation
- V. Other Levels of Communication
  - A. Interpersonal
  - B. Small group
  - C. Public

Figure 1 COMM 3 Course Outline

# **Utilizing e-learning for integrative learning: A value innovation at St Paul University Philippines (SPUP)**

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In school year 2011-2012, SPUP took the strategic direction of adopting integrative learning in response to the development of the 21<sup>st</sup> century required competencies of the industry. It is a fact that when students graduate, the world of work requires them to collaborate and work with people of various disciplines. Their abilities to work in a team and integrate interrelated concepts to the work environment are necessary in the 21<sup>st</sup> century workplace. This paper presents SPUP's experience in utilizing eLearning as a tool to achieve integrative learning where there is a simultaneous pursuit of differentiation, low cost processes and synergy resulting to value creation for the students and the university. It discusses how value innovation is achieved when the whole elearning system of utility, price and cost are aligned to achieve integrative curriculum delivery. It describes how SPUP cost-effectively utilized elearning to achieve collaboration and synergy among different interrelated disciplines during the design, development and delivery of its programs. The research used descriptive case method.

**Keywords:** elearning, learning management system, integrative learning, virtual learning environment

## Introduction

Globalization brings down the barriers to trade and exchange of services among nations to encourage free flow of transactions. It has provided wider playing fields for graduates who seek upward mobility and career path but at the same time has created threats as there are more players competing in the vast arena. The era of globalization demands for a more integrated work force that is able to collaborate amidst diversity; connect theories and principles in various settings and find the interrelationships among various disciplines. The global market opens enormous opportunities for one who is able to integrate himself in a highly complex, changing and challenging environment but at the same time creates disadvantage to one who is not flexible and ready enough. The business industry has accelerated so fast with globalization and internet technology as drivers of change. It has to shift from rigidity to flexibility, from being isolated to interdependencies; from hierarchy flow to matrixes to jumpstart innovations. The ability of people to collaborate, link and connect build synergy for greater productivity.

Education institutions to be relevant, have to face the challenges of developing human resources competent enough for them to succeed in an increasingly complex system of the 21<sup>st</sup> century world of work. Schools like any business enterprise must seek to be customer focus to achieve competitive sustainable advantage. The industry which is the end-consumer of the educational system has become very dynamic and innovative, thus, schools must redefine its teaching strategies and design learning environment to match the industry's needs. The trends and practices in the world of work serve as the drivers of innovation in educational institutions. When the students realize the value of the innovative practices of the school and willing to a price higher than its cost because of utility this is a value innovation.

St. Paul University Philippines (SPUP) is a private university owned and managed by the sisters of St. Paul of Chartres in the Philippines. It has operated in the Northern Luzon, Philippines for 107 years. Anchored on its mission to uplift the quality of life of its students through innovative management practices, it has sought and introduced various relevant innovative practices to develop best product, total customers solutions and value innovation. To keep pace with the demands of globalization, SPUP formulated its strategic directions to include the redesigning of Paulinian Education to meet the needs of the 21<sup>st</sup> century learners by providing a caring environment and empowering, engaging and exciting possibilities; and to adopt a dynamic and enriched curriculum that is project or problem and research-based drawing from real-world situations through multi-disciplinary approach and innovative strategies promotive of authentic learning. Further, it aims on making the University as a hub of innovation in the Region 2.

In school year 2011-2012, SPUP ventured on adopting Dynamic Instructional Plan (DIP) to replace its Teaching Guide. The term DIP was coined to emphasize on the

adoption of integrative learning, creative and innovative strategies that develop the 21<sup>st</sup> century competency requirements in the industry and lead students to be more self-directed in their learning. According to the Center for Teaching Excellence in the University of Waterloo, providing students with the means to integrate their learning can be a challenge for university educators. Promoting an integrative learning approach, however, can assist students in putting the pieces of the university experience into a coherent whole that prepares them for their personal, professional, and civic life.

A review of the curricula and course contents were done at SPUP to identify areas for integration. Series of workshops were conducted on how to implement the integrative learning approach. An analysis on the actual world of work let the academic community realized that the personnel works on projects with people from various disciplines and the ability to collaborate and progress together are key factors to succeed in the job. To support the integration process, the academic community instituted a Wednesday free day class schedule for the students and teachers so integrative learning could be done on this day. A learning street was also set up on campus to provide an open area for the students to work together on their integrated project.

After a year of implementing the integrative learning approach, very few cases of integration processes were made at SPUP (Pizarro,2013). The researcher also attempted to adopt integration of students from various business disciplines in her subject Business Plan Writing. Since all the graduating business students have research subjects, there is potential for them to collaborate such that each team could compose of an entrepreneurship, marketing, management, accountancy and finance students and an English major who would check and edit the composition and grammar of the sentences in the business plan. This set up is more meaningful rather than the traditional group which consisted of students from the same discipline because multidisciplinary team members can share their strengths and expertise in the group and learn more from one another thereby producing a more quality output. Moreover, there is greater potential for the utilization of the research output because the business plan could be implemented by the entrepreneurship students in the course Business Implementation.

The researcher had experienced difficulty to implement the integration due to the lack of common free time among faculty members and students involved in the interdisciplinary or multidisciplinary groupings. Two of the faculty members involved in the integration process were part-time teachers and were employed full-time in the business industry. This made the integration process least feasible because even with the free slot on Wednesdays, they could not be available. The University's Wednesday free slot for integration was found to be not fully effective for integrative learning activities based on the results of the study of Pizarro(2013). The faculty realized that one day in a week would not be sufficient time for integrative learning.



Conflict of schedule arose as different teachers would schedule meetings for integration involving the same students. The Learning Street was not also viewed to be a good place to meet for integration process since Tuguegarao City where SPUP is located is the hottest city in the Philippines. The hot climate made the students prefer to stay indoor rather than outdoor.

In this paper, the researcher explored the possibility of utilizing elearning to support the adoption of integrative learning approach as a virtual place for integration. The Electronic Dynamic Instructional System(eDIS) which is the Learning Management System(LMS) of the University using the Moodle had been utilized in the University since the school year 2011-2012 in the distance and blended learning modes but it had not been used as a tool for integrative learning. The researcher documented the processes she undertook and the best practices she developed from the use of elearning to support and enable integrative learning process using descriptive case study. Yin (1994) shared that descriptive case study is an appropriate measure to employ when the researcher is working on documentation of experiences. It is the hope of the researcher to utilize elearning as a value innovation for integrative learning ensuring that the whole system of utility, price and cost are aligned.

#### Data Analysis and Discussion

A survey among 47 full-time faculty members of SPUP showed that all faculty members agreed to a very great extent that integrative learning is a good strategy to develop integrated graduates equip with 21<sup>st</sup> century competencies. It also revealed that 96% of the faculty were interested to adopt integrative learning approach in their classes. 85% were wanting to be part of the horizontal integration through multidisciplinary integration while 80% like to be involved in horizontal integration of different courses or subjects with the same students. 75% were interested to participate in horizontal integration of the same subjects with different classes. 32 wanted to be part of vertical integration where the output of the students in the previous subject or course is utilized as input for a current course or subject. The least type of integration they wanted to get involve in was in the vertical integration of classes in a higher year level with a lower level with only 11 respondents

Of the 47 faculty-respondents, only 19 or 40% were able to adopt integrative learning. These faculty assessed their implementation only at limited extent at 25% to 50% of their subjects. Seven of them did multidisciplinary integration, 11 did integrative learning of different subjects with the same class while the highest frequency was on the integration of same subject of different classes. Only 3 of the faculty of who did the integrative approach used computer application in the process. The top three difficulties were on finding the common time to integrate among students and teachers for collaborative work; monitoring and tracking the progress of the students who come from different classes; and the lack of space or room where integration process can be done.

Although all the faculty-respondents expressed that they wanted to adopt the integrative learning approach, 60% did not implement it because of the following reasons: they could not figure out how to start the integrative process; they had difficulty in looking for common time among the students to integrate; and they felt difficulty among faculty members to find time to talk and develop common activities in the module; and they get worried on how to track the contributions of each student in the development of output.

The researcher explored on utilizing the Electronic Dynamic Instructional System(EDIS)of the University to perform integrative learning in the tertiary levels. EDIS used Moodle 2.7 as the Learning Management System(LMS) of SPUP. In the first semester of 2012-2013, she experimented 2 preliminary cases of integrative learning. While in school year 2013 to 2014, she did 4 cases of integrative learning which were the subjects of this case study. The facilities and features of the moodle version 2.7 were explored to support integrative learning.

Table 1. Cases in the Study

Case	Nature of Integrative Learning Approach	Classes Involved	Number of Faculty	Description of the Integration	eDIS Tools used for Integrative Learning
1	Multidisciplinary Integration of 5 classes from different disciplines to work collaboratively on a Business Plan	Five classes consisted of 3 Business Plan Writing classes (Accountancy, Management Accounting, and Entrepreneurship), one class in Marketing Research and one English class from the School of Sciences and Teacher Education.	4 faculty members, consisting of the researcher who handled the Accountancy and Management Accounting classes, 1 part-time faculty handling the Entrepreneurship class, one faculty handling the Marketing Research and an English teacher. An entrepreneur from the business industry was also invited as an online guest.	Each team has 2 members coming from different disciplines and work collaboratively on the development of the business plan. Each participant focus on how they can share their expertise and learn from their members.  There was also a team which integrated with Bachelor of Science in Information Technology(BSIT) students who were developing an Information System which they intended to sell commercially. This team substituted the representatives from Entrepreneurship students with the BSIT students	Wiki Forum Chat Database Glossary Quiz Assignments

Case 2	Horizontal Integration of two subjects being taken by the same set of students.	Strategic Management and Business Plan Writing classes	1 Teacher	The students who were enrolled in Business Plan Writing were also enrolled in Strategic Management. Since strategies learned in Strategic Management are needed in the development of the Business Plan, the teacher who is teaching both subjects only requires one integrated project for the two subjects per lesson.	Wiki Forum Chat Database Glossary Quiz Assignments
Case 3	Vertical Integration of the course interrelated courses/subject	Auditing In Computerized Information System Environment of the fifth year Accountancy class and the fourth year Accountancy class in the course System, Analysis and Design; and with the Capstone Project of the Bachelor of Science in Information Technology	2 Teachers	The class of System Analysis and Design of the fourth year BSA students was integrated with the Auditing in CIS Environment of the fifth year. The fifth year students audited the systems developed by the lower years and provided recommendations on how the system can be improved. The Auditing in CIS Environment was later on integrated with the Capstone Project of the BSIT. The experience of auditing the fourth year's BSA system allowed the fifth year to gain real audit experiences and developed the students' confidence before auditing the BSIT programs	Wiki Forum Chat Database Glossary Workshop Quiz Assignments
Case 4	Vertical Integration of the output in the previous class with the current class.		29	The students from Assurance Services Part II class got a chance to assess their output in the previous semester in their former subject Assurance Services Part I and used these outputs as input for the activities in the current subject enrolled. This allowed the students to check on their progression in terms of their skills.	Wiki Forum Chat Database Glossary Workshop Quiz Assignments

For each of the cases, the researcher created Course Module under the course category Integrative Learning on the EDIS where all the students and faculty from different classes who were involved in the integrative learning were given accounts and 24/7 access. They could also access the modules anywhere as long as there was internet connection. The researcher gave tutorial sessions to the faculty as they were not familiar with the use of the EDIS. They were also given orientation on the nature of Integrative Learning Approach. Each faculty member participated in the development of the activities in the module through accessing the EDIS online. There was constant communication among faculty members through the personal messaging feature of the eDIS during the integrative learning process. The researcher acted as mentors to the faculty members involved.

On the first week of classes, the students were given orientation on how to use the EDIS and the nature of the integrative learning. The students were encouraged to send messages to their teachers whenever they have queries on the EDIS. The first part of the Module consisted of activities to deepen the acquaintance among their team mates and teachers. The student as well as the teacher must choose a picture to post online to represent best his characteristics. He has to explain the relationship of the picture to himself. Each member of the team is required to react on the posting of their team mates and affirm them for their sharing. The first part of the module also includes the personal information database of the students including their contact details. The module has an online handbook where the do's and don'ts are spelled out. The handbook contains the rubrics how the students would be graded per activity. Each student needed to read the handbook and shared his insights on what he read before he could proceed to the next activity. Each student and teacher would have to provide a profile picture. There was also a glossary where the teachers and students could post the terms they wish to define to ensure that terms were defined in their context.

In Cases 1 and 2, each team was given a chat room, forum and wiki tools for every integrative learning activity. Each group was given a choice on how they would communicate with one another. They could either or both use their chat room or create a forum for their brainstorming. They could post on the announcement board and agree on the schedule for their chat sessions. If they did not have common free time to chat they could use the forum to react on the postings of their team mates when they would be available. Both chat and discussion forum were monitored by the teachers. They also interacted with the students in both facilities. The students would share their researches on related topics being discussed through the uploading of files and adding of links for their team mates. The wiki became the common notepad of the team in doing their collaborative research. This is where every member contributed to the generation of output. The wiki was viewed and edited any time by the members of the team. The wiki adopts the same methodology of that of the wikipedia where the articles could be edited by any willing contributors. Each teacher and student viewed the output of the team and tracked each contribution from the history log where different versions made with the

file were recorded. The teacher monitored easily the progress made by the students and could give an objective grade for every participant based on their contribution to the collaborative project. The teacher also did timely corrections of the errors of the work of the students in the wiki as correction made could be seen by the students as soon as the teacher edited the wiki. Other than these, the moodle has an electronic log to track all the activities of the students. With these features of the moodle tools, the use of elearning provided solutions to the problems and difficulties the SPUP teachers that they have expressed in the survey.

In Case 2, the students only produced one output for two subjects or courses. These allowed the students to cut down its costs and time for project preparation. With this, the students strived to produce a more quality output as revealed in the survey. In Case 3, the Accountancy fourth year students enrolled in System Analysis and Design uploaded the programs they have developed in the Course Module of the EDIS. These could be accessed by the fifth year Accountancy students for them to be able to have a hands –on experience in Auditing a real program in the subject Auditing in CIS Environment. Each fourth year is partner with a fifth year. The fifth year students then would post their audit observations and findings for the fourth year to consider in the improvement of their program. During the finals, the fifth year BSA students would be ready for integrative learning experience with the BSIT students where they will audit the system developed in the capstone project of the BSIT. The audit findings would serve as inputs for the BSIT to improve their project before their capstone defense. In this way, both groups could benefit from the integration process.

In case 4, the output of the students in their previous subject in Assurance Services Part I was utilized by the students in Assurance Services Part 2. The output in the previous subject could be utilized as input in another subject so the students could view the relationships of the different subjects they are enrolled in. This kind of integration could benefit the students and teachers as they could assess their progress in their skills and competencies. The Accountancy students were able to review the Audit Plan they did when they were in the lower years and identified its weaknesses now that they have higher level of competencies. With the ability of the Learning Management System to document the accomplishments and outputs of the students, these could serve as opportunity for portfolio assessment of the teachers of their students.

In all the cases, the students and teachers accessed the eDIS 24/7 both inside and outside the university. The university has two internet laboratories with open access for the students who used eDIS. 80% of the students have cell phones with internet access and 38% have internet connection at home. Paid wifi connection is also available on campus. Teachers can also avail of ipad loan from the University to support the use of eDIS. An online surveys on the students who participated in the case study were made through the eDIS where the respondents were given anonymous status for them to be objective in their responses.

Table 2. Features the respondents like in the EDIS that made integrative learning possible

Responses	Case 1	f=32	Case 2	f=45	Case 3	f=21	Case 4	f=31
EDIS can be accessed anytime 24/7	32	100%	38	84%	20	95%	27	87%
EDIS can be accessed anywhere as long as there is internet connections	29	91%	39	87%	18	86%	24	77%
It has WIKI where teacher can objectively grade the members of the team because it can track our contribution	30	94%	41	91%	21	100%	24	77%
It has a forum where the students can post their ideas and interact with their team mates anytime they are available	32	100%	44	98%	18	86%	28	90%
It has chat facility where the team members can interact with one another when they are available at the same time	26	81%	25	56%	17	81%	17	55%
We can add links for our team mates to use as reference	25	78%	29	64%	16	76%	22	71%
We can work in the team with out physically meeting;	31	97%	38	84%	19	90%	25	81%
we can edit the files we made and we can view what our teammates posted.	32	100%	38	84%	20	95%	31	100%
real-time processing of information	27	84%	25	56%	18	86%	23	74%
The Wiki provides convenience to our team, we can collaborate in developing our projects even without meeting personally and our instructor can monitor and participate in our activities and output.	30	94%	41	91%	18	86%	19	61%
It is like other social media that we can chat and be able to improve on our communication skills in english	27	84%	32	71%	18	86%	17	55%

It is easy to use.	30	94%	39	87%	21	100%	22	71%
It uses information technology	31	97%	40	89%	19	90%	29	94%
it helps students to come up with new and unique ideas	27	84%	33	73%	17	81%	22	71%
We can add more ideas into the work of our team mates if we want to improve it.	31	97%	42	93%	18	86%	21	68%
we can edit and save our new post to correct our previous post we can view the work of others team and have idea on how they do it, we can share ideas and work together as a team in one output	32	100%	40	89%	20	95%	22	71%
innovative approach is used in answering different types of activities. It is fun and easy.	29	91%	41	91%	21	100%	28	90%
paperless work strengthen the relationship of the class, help us work independently and build up our self confidence	29	91%	42	93%	19	90%	30	97%
it made studying easier through integration with other members.	28	88%	39	87%	20	95%	27	87%
It urges fellow students to accomplish tasks since it is less threatening	29	91%	40	89%	17	81%	25	81%
Easy access, more comfortable to learn.	27	84%	39	87%	19	90%	28	90%
It helps me having a clearer and deeper understanding about my subjects especially their relationships.	31	97%	42	93%	18	86%	29	94%
With EDIS, the teacher can monitor the contribution of the students and therefor creating the fair judgement on the matter of grades.	29	91%	38	84%	18	86%	26	84%
It reduces the expenses that we may incur in printing our outputs.	28	88%	39	87%	17	81%	25	81%
we can review certain topics at home	29	91%	35	78%	19	90%	22	71%

we are comfortable while learning	26	81%	32	71%	18	86%	19	61%
Some experts can critique and comments on our work in the wiki	29	91%	n/a		n/a		n/a	
it allows me to carefully manage the pace of my own learning experience	20	63%	19	42%	12	57%	27	87%
It help me to be trained in the actual field of work through interacting with different people.	28	88%	37	82%	18	86%	22	71%
It has its perks since it uses internet connection, students like me were able to consult other sites that might help us with a certain output.	27	84%	31	69%	18	86%	28	90%
Every contribution is tracked and graded accordingly. Also, outputs can be stored and can be accesses easily.	28	88%	33	73%	19	90%	28	90%
EDIS is like a merger of Facebook and Wikipedia. Its utilization makes studying a lot more fun.	27	84%	38	84%	20	95%	30	97%
I like the fact that, I have been given the opportunity to have an account like this because it is where I can easily type my ideas here rather than writing it in a sheet of paper. Also, when we have exams it is easier to take it rather than the paper-pen type.	24	75%	35	78%	18	86%	29	94%
EDIS is a very convenient learning tool that helps students have more access to what is being integrated in different subjects.	28	88%	37	82%	19	90%	26	84%
It is easily use and we can save more time and cost in using this tool.	27	84%	33	73%	18	86%	27	87%

n/a = not applicable



## Conclusions

In all four cases, the researcher succeeded in the integrative learning process. eLearning is an enabler of integrative learning approach and when it is used creatively results to value innovation because the students were able to understand better the interrelationships of various disciplines affecting them and work collaboratively with less difficulty and ease of convenience. The features in the LMS of Moodle 2.7 facilitated the implementation of integrative learning approach providing total solutions to the problems of limited common time and space to implement integration process. The tracking, monitoring and checking of output of the participants can be conveniently done in the wiki, online log report and all other tools in the LMS. Both horizontal and vertical integrations of courses including portfolio assessment can be meaningfully done through the LMS. Since Moodle is an open source system, the cost incurred for the integrative learning process is less compared to setting up of a physical classrooms where integration activities could be done. The elearning platform which is the eDIS when used as medium for integrative learning is very much valued by both the students and faculty who participated in the 4 cases in this research. Other than these, the modules developed in the eDIS can be repeatedly utilized for the next school years allowing the University to accelerate its return on investment. The implementation of the integrative learning using elearning was found to be of low cost but high in terms of customer's value thereby producing value innovation for SPUP.

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# **Generative dialogue in the distance education programmes of the University of Mumbai, India: Use of ICT and digital technologies**

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## **Abstract**

In a country like India where the cross sections of students' education backgrounds are varied, the distance education at the University should focus on the fundamental aspects of every learning module along with developing connectedness to knowledge and its context.

A proposal was made to use the generative dialogue approach based on Scharmer's model on generative dialogue for distance education programme to the MA ( Education ) part 1 & 2 of IDOL, University of Mumbai in the year 2012-13 for the ICT paper( an optional paper) using ICT , digital technologies. The learning process can be enriched the generative dialogue way by giving the learners space for dialogising, presencing in learning systems. Specialized tools like "Flexbooks", writing blogs in the MOODLE as LMS facilitates the generative dialogue approach. The LMS allowed compilation of distributed educational content using the web, also collaboration with more than one learner interface easily. The dialogue between the learners was done with web conferencing and also provide the readings of recommended resources in the areas of cross cultures and transnational resources. These provided excellent opportunities for learning the generative way.

Any education programme should empower its students for economic entrepreneurship as well as for the gratification of their identity by facilitating learning designs as framework that address diversity and sustainability of conducting fruitfully the distance education program. Hence it demands that the use of digital technologies should be provided at the university centres, its affiliated colleges, city Kiosks and municipal centres in urban places as well as *panchayat centres* in rural settings wherever the contact centres can be established for the education program. The methodology for the inclusion of generative dialogue in learning systems was writing of blogs by the learners on a given topic and preparing a presentation for their students on a chosen topic of their specialization. The enrolled students were most of them in-service teachers without much exposure to digital and web technologies. Thus writing blogs or preparing study materials for their students for the ICT paper would help the learners gain insight about the interconnectedness and relativity of knowledge. The process of writing the blogs, or preparing materials was learnt from their peers and their centre teachers as facilitators. This approach to education shifted the locus of control from the course deliverer to the students providing learner autonomy. The varied languages of India , their regional cultures were thus seen in their presentations and blogs and the comments of others in

their blogs. Thus in a diverse country like India multiple perspectives to knowledge could be seen to enhance and bring the cultural goodness and knowledge, an insight into higher learning than merely studying the “out of context” or alienated course content or only competence based approach. On assessment of the submissions it was found that the learners were confident of use of the learnt technologies, also could use them for Indian languages and for any school or college subjects. This increased their self esteem in terms of technology acceptance. By adopting the generative dialogue approach, it was felt that the University should provide flexible modules of learning and assessment and prevent over generalization of content or too much levelling of the learners for the purpose of certification. The aim of generative dialogue was to increase the catchments of the student community in distance learning systems that may or may not be formal and make them capable of being lifelong learners contributing to sustainable development and entrepreneurship.

Keywords: Generative Dialogue, Collective Wisdom, Empowerment through Learning, Distance education.

### Introduction

In a country like India where the cross sections of students' education backgrounds are varied, the distance education at the University should focus on the fundamental aspects of every learning module along with developing connectedness to knowledge and its context.

A proposal was made to use the generative dialogue approach based on Scharmer's model on generative dialogue for distance education programme to the MA ( Education ) part 1 & 2 of IDOL, University of Mumbai in the year 2011-12 and 2012-13 for the ICT paper( an optional paper) using ICT, and digital technologies.

The concept of generative dialogue in distance education:

Generative dialogue is a dialogue where something new emerges. Its intentions are to bring out something new and bring out the best in the conversations due to the dialogue. The conversation is the most powerful tool for generative and deep dialogue. It requires committed listening, or attending which involves a set of interrelated skills: open-ended questioning, paraphrasing, acknowledging feelings, non-verbal encouragers and summarizing.

When a generative dialogue is used in distance education there occurs movement into a possible outcome than a unpredictable future. The participants of the dialogue experiences a movement from sensing to presencing and finally transforming. This movement of the participant is unforced and fruitful.

The generative dialogue used in distance education, is able to get the students' attention which otherwise is not under the control of the distance teacher, hence the teacher has to design for learning and transformation. The learning process can be enriched the generative dialogue way by giving the learners space for dialogising, presencing in learning systems. Digital technologies offers specialized tools like “Flexbooks”, writing blogs in the MOODLE as LMS, that facilitates the generative dialogue approach. The LMS allowed compilation of distributed educational content using the web, also provided collaboration with more than one learner interface easily.

The following diagram ( Fig 1 ) shows the movement of student learning following

Scharmer's model of generative dialogue.

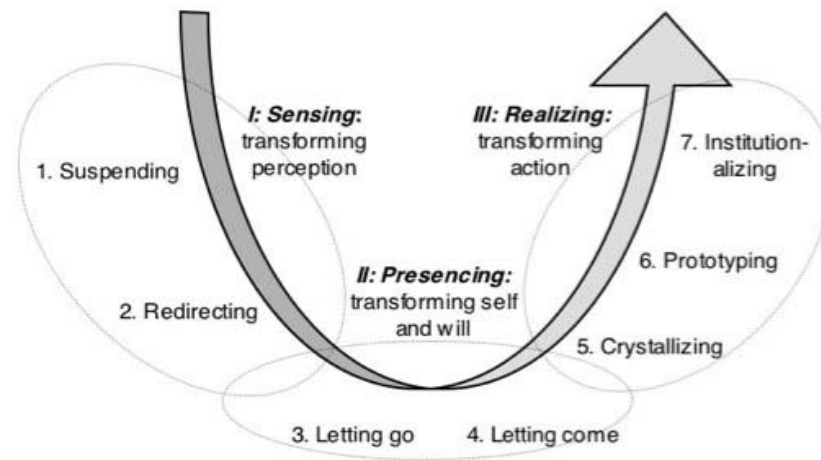


Fig 1: The path of student learning in a generative dialogue

The paper under consideration for distance education was ICT for the degree of MA Education(II). The stages of generative dialogue have been exploited subtly so that the students are gradually taken from new learning to adoption of the ICT for their future teaching-learning. It is in this process that a desire for dialogues arises.

The six topics on use of ICT was first introduced by the Dr Hemlata Chari, the Deputy Director ( Academic ) in IDOL as a teacher educator, over an online class using A-View and WizIQ held late evening. The students were initiated into various softwares like making presentations, creating blogs and writing comments on other blogs in the respective school/ college subjects.

The distance learners were then supported by their assigned facilitators and peer tutors who were well versed in ICT from previous years' batch asynchronously through messaging /email and messaging. Thus listening and receiving without confrontation in a generative way gave an environment of synergy. Thus a two way conversation was initiated which could not have existed due to distance. In the process genuine and authentic dialogue emerged on topics and in regional languages where use of technology was rather difficult.

Theoretical base of generative dialogue:

In his recently published book, *Dialogue and the Art of Thinking Together*, William Isaacs states that "the simple premise of this book is that neither the enormous challenges human beings face today, nor the wonderful promise of the future on whose threshold we seem to be poised, can be reached unless human beings learn to think together in a new way."

Dialogue develops other capacities to connect people and ideas in a conversation, and the issue of control is usually absent and learning is uncoercive. It is also self-transcending . This kind of "self-transcending" knowledge can be thought of as tacit knowledge prior to its embodiment

. Often integration of existing thoughts lead to new ideas.(

Some relevant questions emerged when the students engaged in conversations. Since

these ideas were not created in classrooms what if the knowledge generated does not allow for transformative ideas to emerge? What if the demands of change in an organization or community requires ideas, thoughts, strategies and actions that are counterintuitive to the existing knowledge? Will the outcomes of the dialogue provide the potential for generating new ideas that are not consistent with the thinking of the people involved? And how can the actual process of the dialogue be constructed so that information and concepts not available in the moment are introduced in an effective and timely manner?

The term "generative dialogue" as a part of our plan of our transaction of the ICT paper not only focused on the need to have diverse people connect their ideas at a deeper level, it also opened the door for totally new thoughts. Thus the concept and methods of generative dialogue became central to the process of learning in the ICT paper of MA Education (II).

"Generative dialogue emerged as people let go of their positions and views. They found themselves attending simply to the flow of conversation, a flow that enveloped and lifted them to a new level of shared understanding about dialogue."

According to Isaacs, generative dialogue "invents unprecedented possibilities and new insights and produces a collective flow." We find this is true. We also find that without trends of the future being introduced into the dialogue, unprecedented possibilities and new insights may or may not be "transformational." It depends on whether the framework of change is seen as "reforming" or "transforming."

The idea of generative dialogue is relatively new. The capacities for this concept are almost unexplored except for the pioneers like William Isaacs. Our approach to learning in distance education with student groups facilitated into "transformational learning" and "process leadership" has given us evidence of how to build the capacities for generative dialogue and how to utilize it as one tool in a toolbox of transformational concepts, methods and techniques.

**Methodology of the study:**

For the study a strategy was decided based on generative dialogue. The students were to attend online sessions on preparation of spoken tutorials, theoretical concepts on ODL and ICT. A mixed method approach was used. It was qualitative dominant, where interviews were conducted, and the focus group was measured in terms of their learning of ICT in education. For the quantitative aspect a semi structured questionnaire was used to evaluate the programme at the end of the academic year of the programme. The response was collected using Google forms and was accessed online.

**Population and Samples of the Study:**

The population of the ICT paper in MA Education (II) are practising or inservice teachers from different faculties, where they have completed at least their B.Ed degree in addition to their first graduate degree. Several of the students were also Post graduates teacher in junior colleges or at K12 stage.

The sample of the study were all the students enrolled for this optional paper of ICT in MA Education (II) and 200 students in 2011-12, their numbers were 210 for the academic year 2012-13.

#### Research Instruments:

A semi structured questionnaire was used to get the feedback of the process of learning . There were 7 to 8 face to face meetings and day to day interaction through University site of IDOL (eclipse.mu.ac.in) . At the beginning students were asked to join an online web conference using the A-View software so that they get exposed to teaching online as well the recording of the proceedings were shared for students who could not log in.

The students were also taught how to prepare spoken tutorials for study materials which would be helpful to them in their subjects. The use software CamStudio which is able to record all screen and audio activity on your computer and create AVI video files and using its built-in SWF Producer can turn those AVIs into lean, mean, bandwidth-friendly Streaming Flash videos (SWFs). CamStudio is used to create demonstrations, and video tutorials for any software program for the class.

The other activities for the learning of ICT was to ask the students to prepare their own blog and share with others on the Moodle of IDOL so that there was dialogue and also peer teaching. This was facilitated in two languages English and Marathi.

The process of learning ICT was done with the help of peer tutors who were passed out students of IDOL and were always around for the online students. The queries could also be asked offline through chats, thus learning was non invasive, with sustained interest and with multiple perspectives. The teacher educators were facilitators and encouraged dialogue amongst the students and were monitoring the student progress in use of ICT for their submissions .

#### Data Collection And Data Analysis:

The evaluation of the learning of ICT was collected from a feedback evaluation form. Analysis of blog was assessed by the quality of the content and the originality of the content. The concepts of open access and copyrights were actually practised due to the submissions.

The products for submission, the frequency of students who accessed the blog, also the frequency of writing comments to others blogs while participating in a dialogue were monitored.

#### Conclusion and results

The students of MA Education (II) were positively inclined towards ICT in education. Their active participation, motivation to learn from their peers, dialogue with their facilitators indicate that the generative dialogue approach was indeed a fruitful one. It is here that in topics where discussions could be facilitated there was a busy activity indicating the journey of transformation. The sensing , the presencing and transformation could be seen distinctly in their response forms . The evidence of being generative, was distinctly seen in their blogs, writing comments in others' blog and producing original submissions. The percentage of responses towards agreeing to the course was 41% ,while 21 % strongly agreed to have opted for the ICT course.

The analysis of the feedback form indicates a positive change in their attitudes towards ICT and not only that, it also gave them skills to work in their regional languages like Marathi or Hindi, both of which use the Devnagri fonts. The generative dialogue and the transformation was achieved without force and ICT was embraced with positive attitude. The multiple perspectives, the easy learning from their peer tutors and the learner autonomy was at the heart of the generative dialogue. This experience has great bearings in teacher education where assessment is creative, with ensured quality. The

diverse learners of MA Education (II) were thus beneficiaries of the generative dialogue approach where the learners were relatively transformed and learning became seamless.

The paper is seen more in the light of qualitative aspects because the process of learning is of most importance in distance education which is due to the impediments and distances that exist between learners and the teachers.

By adopting the generative dialogue approach , it was felt that the IDOL of the University should provide flexible modules of learning and assessment and prevent over generalization of content or too much levelling of the learners for the purpose of certification. The aim of generative dialogue was to increase learning and encourage the catchments of the student community in distance learning systems that may or may not be formal and make them capable of being lifelong learners contributing to sustainable development and and lead to entrepreneurship.

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## **WOU mLearning: Widening access to teaching and learning in an ODL environment**

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This paper describes an experimental implementation of mobile-learning (mLearning) initiative in Wawasan Open University (WOU). The high penetration rates of mobile phone subscriptions and the rapid growing of handheld users show that it is viable for making inroads towards the usage of mobile devices as an alternative learning mode for distance learners in WOU. The mLearning initiative is aimed to encourage learning and interactions in WOU distance learning communities aiming to bridge the transactional distances faced by the learners and adopt mobility as the key tool in courses delivery. The WOU mLearning initiative focuses on introducing interactive mLearning approach, namely “WOU mLearning App” targeted on handheld devices to be made easily accessible through the use of tablet PCs and such other mobile devices for ODL learners in ubiquitous learning environment. The mLearning approach is considered as a learning alternative to support distance learners, mainly working adults in WOU. This research paper discusses the implementation of the mLearning approach which comprises three development phases namely: Phase I (*Readiness Study*), Phase II (*WOU mLearning App Prototype Design & Specification*) and Phase III (*Deployment & Implementation*). The focuses on the targeted mobile devices platforms and learning preferences by WOU learners are further studied and identified in the readiness study. The project demonstrates the process of using handheld devices to view the course modules, learning materials, attempt quizzes anywhere and anytime, allowing learners in engaging academic activities without the time and location barriers.



## **1. Introduction**

As the world becomes increasingly connected, there is a need for higher education institutions to provide mobile-learning (mLearning) for accessing appropriate educational resources according for mobile learners aiming to facilitate interactive learning in Open Distance Learning (ODL) environment. According to Chung & Khor (2012), mLearning has high potential to fuel collaborative movements and increase learner's interactive through distance learning. According to Hisham (2001) and Flowers (2001), the study reveals that distance learners experienced isolation due to lack of interaction and communication with fellow learners, tutors, and the university as compared to those in traditional universities. This paper presents the development framework and the prototypes for the implementation of WOU mLearning initiative in providing content availability and flexibility across mobile learners and explains how the architecture addresses these challenges and assists in both design and experimental study. The implementation of the WOU mobile-learning approach comprises of three development phases mainly: Phase I (Readiness Study), Phase II (WOU mLearning App Prototype Design & Specification) and Phase III (Deployment & Implementation). The paper is organized as follows: Section 2 identifies the main objectives of the WOU mLearning initiatives. Section 3 reviews the case study of mLearning and relevant technologies and section 4 provides the methodology of research study. The system architecture and the WOU mLearning prototype are illustrated in Section 5 and 6, followed by conclusion in Section 7.

## **2. Objectives:**

The main objectives of the WOU mobile-learning initiative includes:

- To support u-learning (ubiquitous-learning)
- To encourage interactive learning by providing WOU mLearning App via handheld devices
- To increase flexibility of learning by accessing course learning objects in mobile platforms

## **3. Literature Review:**

The literature review covers studies of relevant technologies and learning theories in ODL institutions to determine the technical feasibility of the proposed approach, combining ubiquitous learning with research on the design principles for acquired mobile-learning systems. A review of mobile-learning literature presents the opportunity for conducting a study based on five aspects as illustrated in the section follows:

### **(I) Designs and implementations of m-learning challenges**

The designs and implementation in mobile-learning focuses on mLearning approaches and identifies challenges arises. According to van't Hooft et al. (2007), ubiquitous learning (u-learning) involves learning in an environment where “all students have access to a variety of digital devices such as mobile computing devices, whenever and wherever they need them”. Pea and Maldonado (2006) cited that portability, small screen size, computing power, diverse communication networks, data synchronization and stylus input are the challenges of technology attributes in u-learning.

### **(II) Pedagogical Framework for m-learning**

The pedagogical framework is employed as the main elements as designing the mobile-learning as a learning tool. The study conducted by Yeonjeong (2014) highlighted that transactional distance and mobile-learning are important considerations for learners completing course lessons while learning. Yeonjeong (2014) further described the technological attributes and pedagogical affordances of mobile learning in distance learning environment. The study conducted proposed the effective use of transactional distance theory using mobile-learning in teaching and learning context.

### **(III) Educational standards for m-learning and m-learning application development**

Judy et al. (2014) pointed out the study of educational standards for mobile-learning application development is used to address the portability and development of learning materials. The examples which influence the role of educational standards includes the HTML5 (the new version of HTML) and the Experience API (the extended SCORM API) are defining a new base for content development and delivery in mLearning.

### **(IV) Media formats and technologies for m-learning platform**

According to Uther (2002), successful mobile applications tend to employ many rich media objects, yet they should not distract from the learner's experience. Mobile-learning content can be delivered in short ‘nuggets’ rather than large units of information, which can be supported by appropriate use of different media types namely video, audio, graphics and text. Researchers and course practitioners embedding latest mLearning options such as Bring Your Own Device (BYOD), mobile social media, mobile applications (Apps) and embedded mobile sensors to bring meaningful learning in academic curriculums and training (Inge, 2014).

#### 4. Methodology:

The following is the development phases of essential activities of the system development life cycle (SDLC) in the seven development stages illustrated in Table 1. The WOU App approach highlights new path for learning support and facilitate more widespread use of interactive mobile devices among the mobile learners.

Table 1. Mobile-Learning Development Plan with Management Control Domains

Development Stages	Activities	Management Control Domains
1.	Project Initiation <ul style="list-style-type: none"> <li>• Calling of mobile-learning practitioners</li> <li>• Initial phases discussions</li> </ul>	Planning & Organization
2.	User Requirements Definition <ul style="list-style-type: none"> <li>• Literature Review</li> <li>• Readiness Study</li> <li>• Dissemination of Collective Measurements</li> </ul>	
3.	System Requirements Definition <ul style="list-style-type: none"> <li>• WOU App specification (receivable contents, additional features)</li> </ul>	Acquisition & Implementation
4.	Analysis and Design <ul style="list-style-type: none"> <li>• WOU App architecture, process flow design</li> <li>• Instructional design</li> </ul>	
5.	System Build/Prototype <ul style="list-style-type: none"> <li>• WOU App development</li> </ul>	Delivery & Support
6.	Implementation and Testing <ul style="list-style-type: none"> <li>• Experimental Design</li> <li>• Experimental Results</li> <li>• Discussion</li> <li>• Conclusion</li> </ul>	Monitoring & Evaluation
7.	Sustainment	

## 4.2 Research Process

This research integrates WOU ubiquitous learning environment which adapts innovation platform technologies using Xcode from iOS platform devices to create WOU learning App. The application design and testing process are presented in development stages are showed in Figure 1. The following mobile-learning readiness study is developed aiming to serve the investigation of two main components mainly technical aspect and summary of profile; requirements and perception on mobile-learning.

## 4.3 Phase I: WOU Mobile-Learning Readiness Study

The readiness study is proposed to determine the readiness of WOU learners in mobile-learning and highlight the specifications prior to the development of WOU Learning App in WOU. The readiness study as illustrated in *Appendix I & II* covers the determinacy of learners in terms of mobile-learning technology as an additional learning mode in ODL environment. The readiness study in *Component I* covers the determinacy of learners in terms of mobile technology as an additional learning mode in ODL environment. In *Component II*, the study explores the factors, navigations and design requirements of mLearning environment in WOU. The readiness study focuses on the following aspects and data collections:

### *Component I: (Technical aspects and summary of profile)<sup>1</sup>*

- i. Mobile devices platforms
- ii. Tablet PC platforms
- iii. Profile of mobile-learners (respondents)
  - a. Geographical distribution
  - b. Gender distribution
  - c. Educational funded learners

### *Component II: (Requirements and perception on mobile-learning)<sup>2</sup>*

- i. Requirements, navigations and specifications of mobile-learning user interface
- ii. Preferable learning content in mobile-learning (audio, video, course

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<sup>1</sup> *Readiness Study (Component I)* survey focuses in investigating the technical aspects and learners' profile in mobile-learning readiness study for WOU learning environment.

<sup>2</sup> *Readiness Study (Component II)* survey investigate the requirements and perception on mLearning.

- materials, simulations)
- iii. Additional receivable features (quizzes, reminder/notifications, announcements)
- iv. Perception on mobile-learning
  - a. Assist in self-learning
  - b. Attraction and motivation in learning
  - c. Flexibility in learning

#### **4.4 Phase II: WOU App Prototype Design and Specification**

- Identification and evaluation of feasible WOU App platforms and features
- Prototype development of WOU App (iOS)
  - i. **Xcode** development environment
  - ii. Testing and debugging application using **iOS Simulator**
  - iii. User Interface design using **Interface Builder**

Mobile devices use small screens, restrictive input methods and limited battery life. Therefore, the UI design for WOU App is designed in order meet users' needs without overloading them with unnecessary complexity, operating too slowly or consuming excessive power.
- Review, testing and evaluation of WOU App prototype in WOU learning environment

#### **4.5 Phase III: Deployment and Implementation**

This section indicates the submission and distribution of WOU mLearning App in *Apple App Store*, preparation of periodic project progress, final technical reports, training and documentation of WOU mLearning App. The mLearning support portal includes WOU App documentation, WOU App web portal support (<http://wouapp.wou.edu.my>), WOU App version, compliances (Development Certificate Profile, Distribution Provisioning Profile)

##### ***WOU App monitoring and evaluation***

Periodic and continuous review in Stage 7: *Sustainment* (Table 1) defines regular App maintenance and adaptation upon completion of initial development and deployment. Proper enhancements and balance of features versus iOS device constraints is studied and included in future release when new mobile OS versions are released.

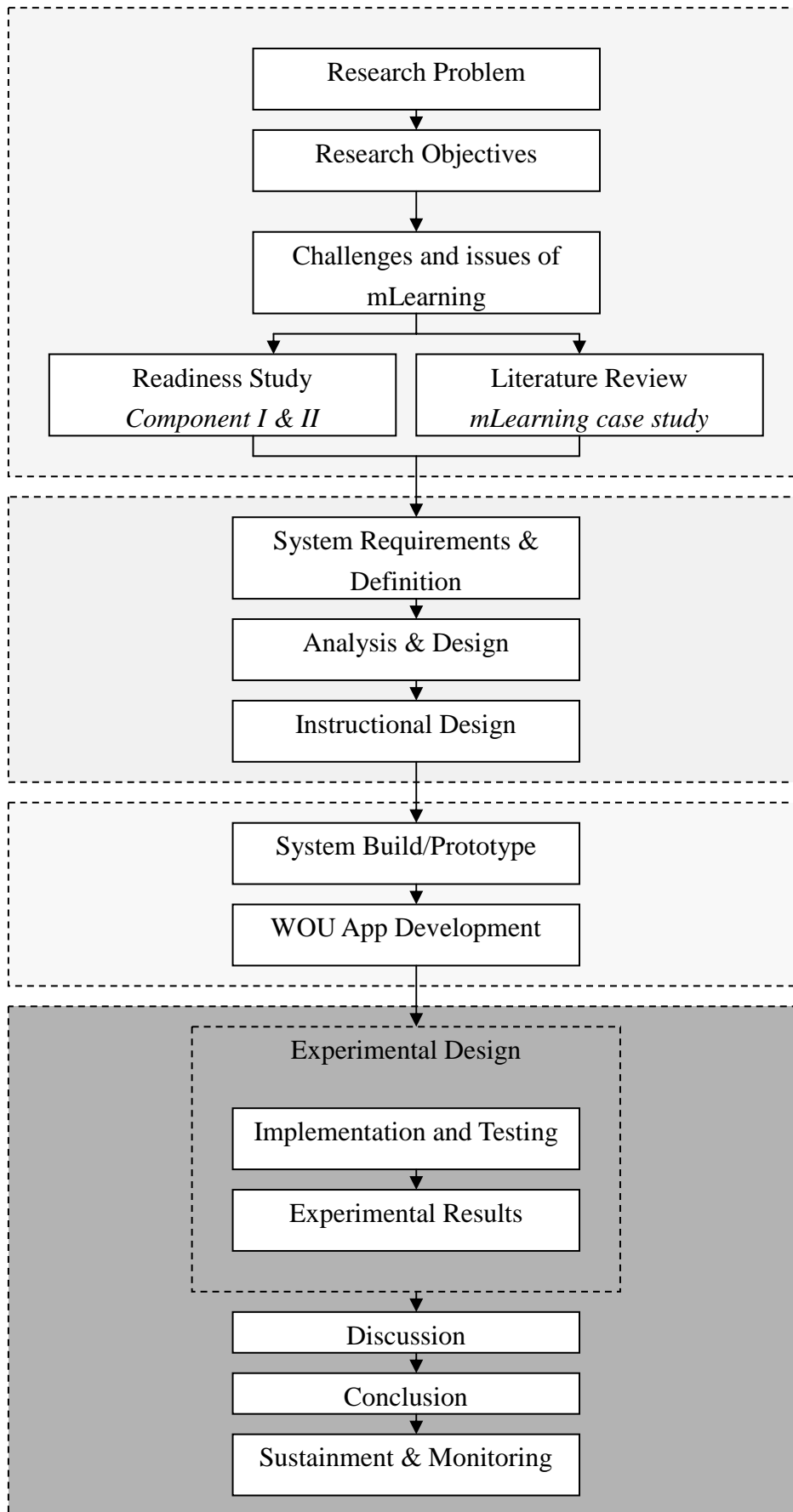


Figure 1: mLearning Research Flowchart

## 5. System Architecture:

The mLearning framework is designed to be implemented on WOU-level involving learners across all regional centres. This project determines the mLearning framework include aspects such as the process and message flow, system architecture. The learning experiences and reviews are also derived from the pilot study of WOU learners to track downloads, reviews and statistics on respective WOU courses. Acceptance test and experimental studies aims to gauge the acceptance level of the WOU learners towards mLearning and determine the preferable contents and framework for WOU App. The following Figure 2 depicts the work flow of tester, iOS mobile agent and program portal.

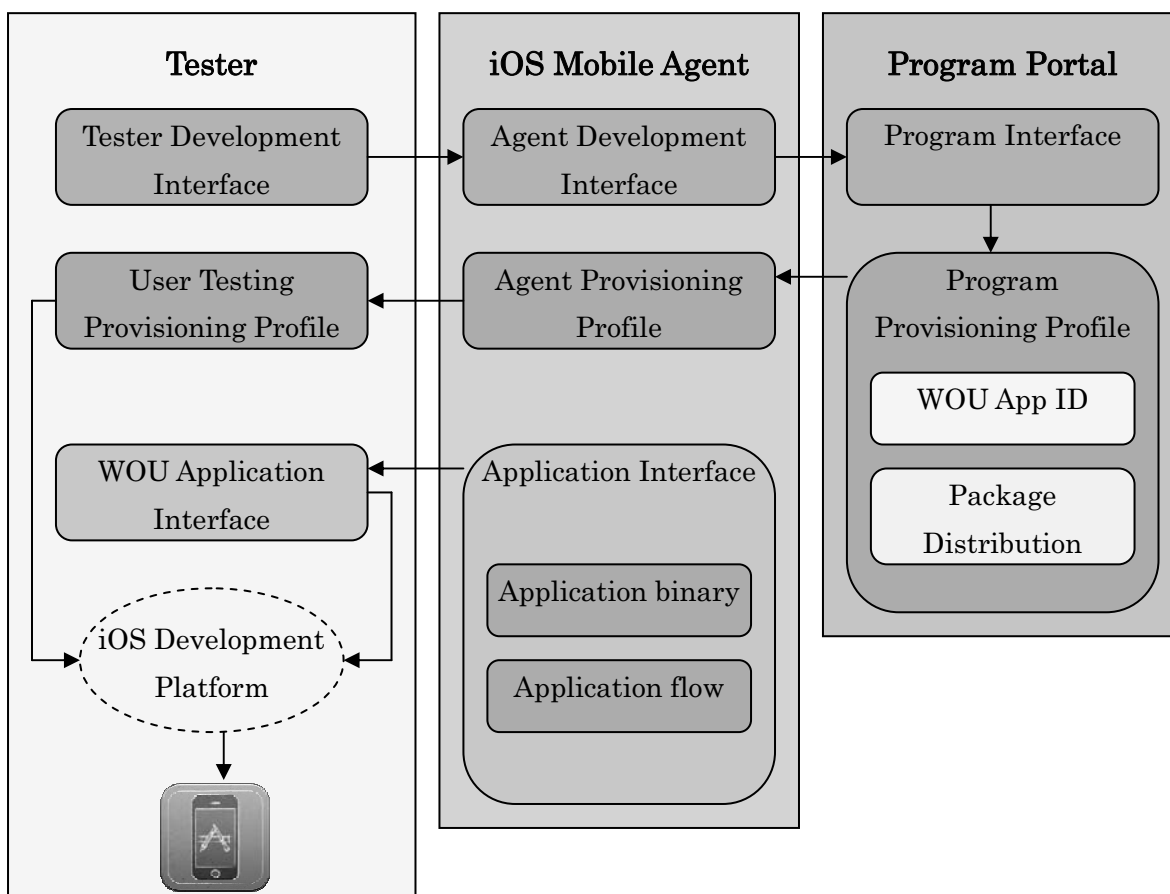


Figure 2: System Architecture for WOU mLearning

## 6. WOU mLearning Prototype:

In Figure 3, the WOU mLearning App interface that deployed in iOS such as iPhone (iOS version 5.2 or higher), screen size (320 by 480 pixels) enable learners to engage interactive learning which takes place via automated, real-time access of courses such as TCC121/05 Programming Fundamentals with Java, TCC238/05 Structured Programming and TAI304/05 Fundamentals of Artificial Intelligence. The WOU mLearning App prototype provides the alternative to course materials for learners taking various courses offered in undergraduate programmes in WOU such as *Quizzes, Extra Resources, Social Wall* and *Announcements*.



Figure 3: WOU mLearning App Main Menu



Figure 4: WOU mLearning App Extra Resources



Figure 5 highlights the *Social Wall* to facilitate discussions and study groups enrolled by the learners. The *Social Wall*'s functionality emphasizes on the “collaborative” and “personalization” core educational concepts of mobile-learning which stimulate the generation of ideas and opinions. Figure 6 illustrate the *Announcements* feature which provides reminders, alerts, events initiated by the course providers.



Figure 5: WOU mLearning App  
Social Wall



Figure 6: WOU mLearning App  
Announcements

## 7. Conclusion:

The WOU mLearning initiative focuses on the initial study of WOU mLearning App and explains the technologies involved and development roadmap for WOU mLearning App based on iOS technology. It is hope that the WOU mLearning App approach would open up new path for learning support and facilitate more widespread use of u-learning and seamless learning environment for a fluent, motivational user learning experience. The project focuses on three main elements in mLearning, namely (i) to support u-learning, (ii) to encourage interactive learning and (iii) to increase flexibility of

*learning using WOU mLearning App.* The mLearning serve as learning platform to enhance learners' learning experience and encourage interactivity in ODL environment. In this study, the development team proposes the use of WOU mLearning App as the alternative delivery platform in WOU to boost the learners' motivation for lifelong learning. The learning support provided by WOU App is aimed to offer distance educational experience that encourage learning activity in the ODL environment.

## **8. Acknowledgement:**

The authors would like to thanks the WOU Mobile Learning Research Group (MLRG) and the WOU Institute Research and Innovation (IRI) team members for the supports and efforts provided during the WOU mLearning App development phases.

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## **Appendix I:**

### ***Readiness Study (Component I)***

*The following survey is conducted to investigate the mobile-learning readiness study in WOU learning environment. Kindly choose the best answer from the available options.*

*Which kind of mobile devices do you owned?*

- *Smartphones*
- *Tablets*
- *Other: (Please specify)*

*Which Operating Systems is running on your mobile devices?*

- *Android*
- *iOS*
- *Windows Phone*
- *Blackberry*
- *Symbian*
- *Other: (Please specify)*

*Kindly indicate your geographical distribution:*

- *Penang*
- *Kuala Lumpur*
- *Johor Bahru*
- *Ipoh*
- *Kuching*
- *Other: (Please specify)*

*Kindly indicate your gender:*

- *Male*
- *Female*

*Do you prefer mobile-learning as an alternative to support distance learning?*

- *Yes*
- *No*

*Do you think it is affordable to invest on a mobile device for the mobile-learning?*

- *Yes*
- *No*

## **Appendix II**

### ***Readiness Study (Component II)***

*Which type of learning content do you think a mobile-learning app should support?*

- *Audio*
- *Video*
- *Interactive Mobile Online Course*
- *Simulations*
- *Other:*

*Which type of receivable features do you think a mobile-learning app should support?*

- *Quizzes*
- *Reminder/Notifications*
- *Announcements*
- *Other:*

*Do you agree that using mobile-learning can save the resources such as travel expenses and times?*

- *Strongly agree*
- *Agree*
- *Neutral*
- *Disagree*
- *Strongly disagree*

*Do you agree that using mobile-learning can achieve the effects of flexible learning?*

- *Strongly agree*
- *Agree*
- *Neutral*
- *Disagree*
- *Strongly disagree*

*Do you agree that the mobile-learning can assist in self-learning?*

- *Strongly agree*
- *Agree*
- *Neutral*
- *Disagree*
- *Strong disagree*

*Do you agree that the mobile-learning can be regarded as one of the motivation factors to encourage in distance learning?*

- *Strongly agree*
- *Agree*
- *Neutral*
- *Disagree*
- *Strong disagree*

# **Skill development in business intelligence for ICT graduate programmes in ODL: A case from Sukhothai Thammathirat Open University STOU**

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## **ABSTRACT**

Sukhothai Thammathirat Open University (STOU) is the first university in Southeast Asia to use the distance learning system. Studies at STOU are self-directed learning, not confined to traditional classrooms. The STOU distance learning system makes quality higher education accessible to all, with the freedom to study and interact. Courses are developed by course teams and then delivered to students through distance media. Print based media are main media for all study programs including textbooks, study guides (graduate courses). Supplementary media includes radio programs, public television programs named STOU Channel. These digital resources such as satellite radio, audio CDs, video media and online e-Learning are available through STOU website, [www.stou.ac.th](http://www.stou.ac.th). Moreover, all tutorial sessions of face to face and online tutorial TV based are also open for public accessibility.

School of Science and Technology, Sukhothai Thammathirat Open University, has offered master degree in ICT since 2011. The program focuses in ICT bridging of business and Information and communication technology in both theoretical and skill. The study system delivers via e-learning with printed form of in-house developed textbooks and study guides. All print-based version is also available online as eBooks format. The design of learning system especially in skill development of those technological intensive subjects needed for student in ODL to practice is mandatory. Skill development in the program covers in areas of modern technology such as data warehousing, business intelligence. A toolkit for self-directed learning and practicing in business intelligence was designed and developed by course teams and invited experts from industry in the fields. The developed toolkit is essential for decision support systems and business intelligence applications. The paper will discuss about skill development of Business Intelligence in term of what required skill and how to develop specific skill for students to support decision making. The expectation outcome of skill development in Business Intelligence covers in technical skills and core competency in analytical thinking, leadership and team work collaboration, communication. However, there are still some challenge issues in skill development in Business Intelligence for graduate ICT program in ODL to be explored further.

**Keywords:** Skill Development, Business Intelligence, ICT, Graduate Program, ODL, STOU

### *Background*

Sukhothai Thammathirat Open University (STOU) is the first university in Southeast Asia to use the distance learning system. Studies at STOU are self-directed learning, not confined to traditional classrooms. The STOU distance learning system makes quality higher education accessible to all, with the freedom to study and interact. Courses are developed by course teams and then delivered to students through distance media. Print based media are main media for all study programs including textbooks, study guides (graduate courses). Supplementary media includes radio programs, public television programs, STOU Channel – a university TV station. These digital resources such as satellite radio, audio CDs, video media and online e-Learning are available through STOU website, [www.stou.ac.th](http://www.stou.ac.th). Moreover, all tutorial sessions of face to face and online tutorial TV based are also open for public accessibility.

School of Science and Technology has offered master degree program in ICT since 2011. The program focuses in ICT bridging of business and Information and communication technology in both theoretical and skill. The learning system conducts in distance learning system mode which mainly rely on student direct learning. All print-based version is also available online as eBooks format. The program aims to provide both theoretical and applicable knowledge for students to support their ICT profession in the job markets. Therefore, the program covers content with both theoretical subjects as well as technical expertise in ICT areas. The following are some examples of courses offered: e-Business and e-Commerce; Strategic ICT Management; Network Security, Information Systems Development and Project Management; Data Warehouse, Data Mining and Business Intelligence; Geographic Information Systems. The requirement of skill development is mandatory since ICT is very rapid change with technical oriented. The design of learning system especially in skill development of those technological intensive subjects needed for student in ODL to practice is concerned. The paper discussed about skill development of Business Intelligence or BI in term of what required skill and how to develop specific skill for students in decision making. The expectation outcome of skill development in Business intelligence is to enable students in analytical thinking, leadership and team work collaboration, communication and technical skill.

### *Objectives*

The objectives of the topic are as follows:

1. To present the process of skill development in business intelligence for ICT graduate program at STOU.
2. To present the expected outcome of skill development in business intelligence.

### *Business Intelligence Concept*

Business intelligence or BI is crucial to strategic decision making, but it seems often lack of effective tools to analyze voluminous and dynamic streams of Big Data. The definition of Business Intelligence defined by Olivia Rud (2009) as follow:

“The transformation of raw data into meaningful and useful information for business analysis purposes. BI can handle enormous amounts of unstructured data to



help identify, develop and otherwise create new strategic business opportunities. BI allows for the easy interpretation of volumes of data. Identifying new opportunities and implementing an effective strategy can provide a competitive market advantage and long-term stability.”

Business Intelligence helps business leaders use data in ways that are meaningful and powerful. The data can drive business decisions that can proactively respond to market trends and other external factors. While businesses today collect and store copious amounts of raw data, few are actually harnessing the power of that data to drive business insights and transformations. Business Intelligence provides methodologies and tools for today’s business leaders to change effectively and lead their organizations with fact-based decisions and a more holistic view of growth potential (<http://www.villanovau.com/resources/bi/overview-of-business-intelligence-bi-components/>).

*Framework of Skill development in Business Intelligence*

Business Intelligence and Data warehousing can simplify and accelerate the delivery of insights for business analytics. The expected outcome for skill development in Business Intelligence are individual to gain core competency in the following criteria: analytical thinking, communication, leadership and team work and technical skill.

Therefore, The framework of skill development is designed and pre-organized activities through assignments and case study. There are core activities integrated with Data warehouse, Online Analytical Online Process, Data Mart and Visualization Reports in graphs and dashboard to support decision making more effectively. As shown in Figure 1. A conceptual framework of skill development in BI.

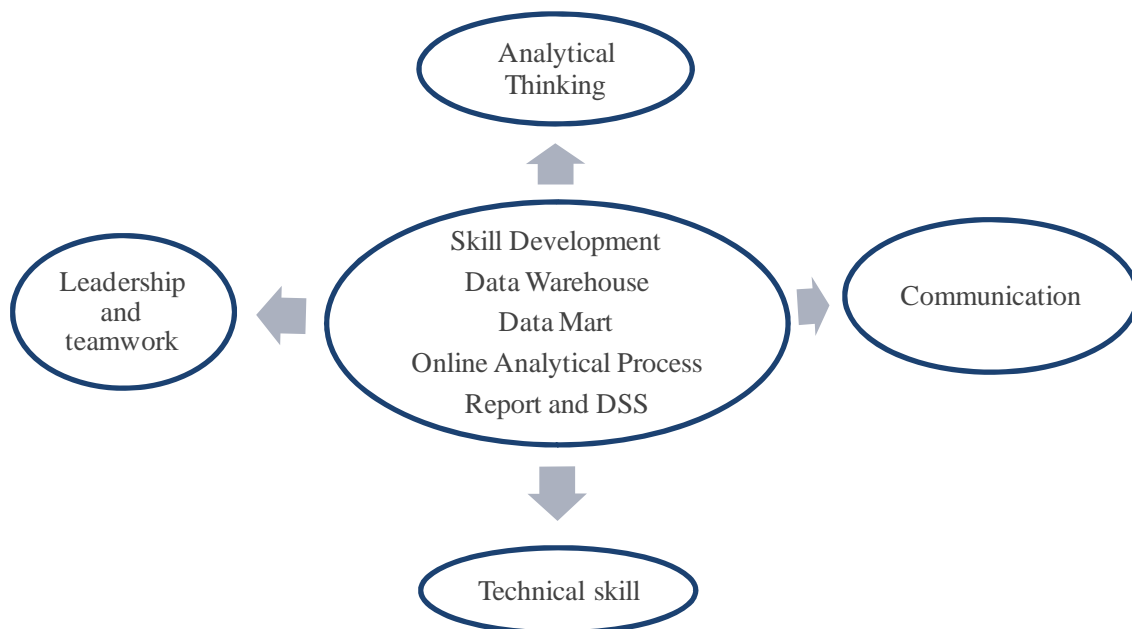


Figure 1: A conceptual framework of skill development in Business Intelligence.

### *Process of skill development in Business Intelligence*

There are several steps involve of skill development as follows:

1. *Planning process.* This step focuses in

- what skill to develop.
- how to develop the toolkit to serve Business Intelligence skill development.
- delivery system of skill development.
- activities and time schedules of students and instructors/mentors
- role of instructor to monitor and to give feedback.
- evaluation criteria.

More detail will be discussed in the next section.

2. *Toolkit development process.* Toolkit contains essential areas of knowledge and skill required for BI as:

- Data warehouse creation. First of all, the students need to know how to create or generate a data warehouse from corporate database which contain all fruitful data for decision making. The foundation concept of data warehouse creation is ETL (Extract, Transfer, Load). Therefore, the toolkit will provide activities for students to understand data warehouse concept and how to generate data warehouse.
- Data mart creation. Data mart is subset of data warehouse.
- Visualization, report generator and business dashboard presentated in multi-dimension aspects to serve dynamic and powerful decision making. The students can practice and view the report to forecast the trend of massive data. Figure 2 represents multidimensional data of simulated business in the case study of the toolkit.

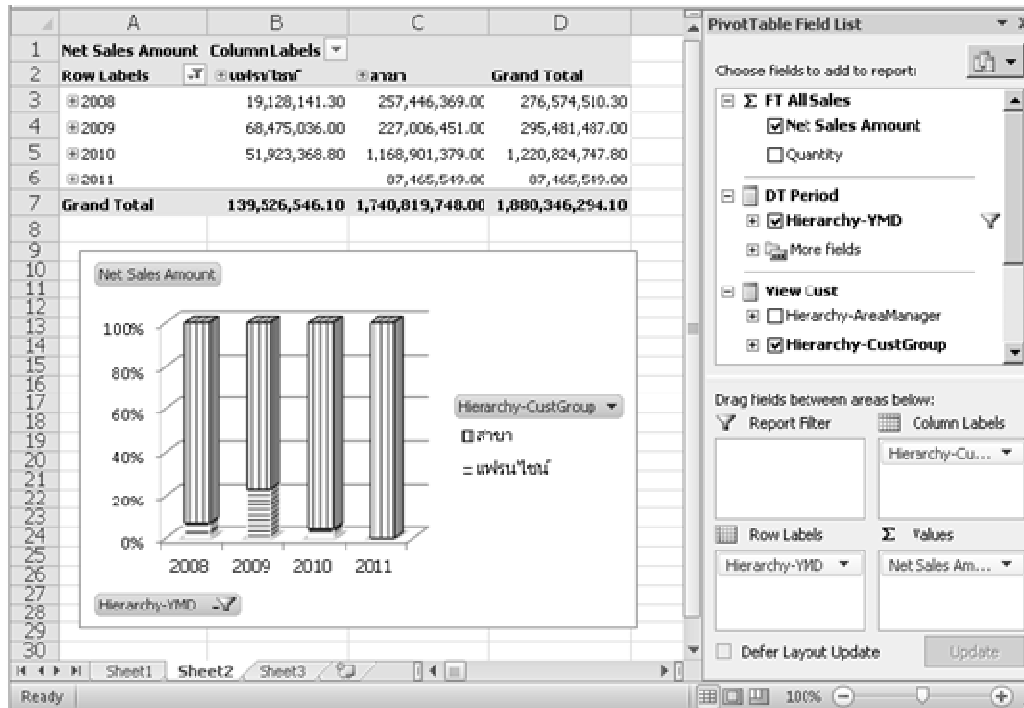


Figure 2 Generated Report of Sales Amount from 2008-2011  
 (Source: Kullathep Jiraluck and Ekasit Wiwatanaprasit (2011))

A commercial software/training package that is used for toolkit development are SQL Server 2008 R2 and Microsoft Excel. The reason for using such software is the popularity and user friendly interface in presenting graphical reports in a clear and easily usages. Moreover, the learning curves of the software is very fast. However, there is still some limitation of using commercial software instead of open source software in term of accessibility and openness. In this case, students need to practice the software at the designated location because of the copyright issue. Although, there is a free trial version of the software, students need some guidance how to obtain and to operate the software.

3. *Training Process.* There are 2 phases for training process - online training and face-to-face training.

- *Online Training.* Prior to face-to-face training, This part prepares students to be ready before attending face-to-face training. Most of training in this part are reading assignments and analyze reports from case study to give solid background of theoretical knowledge in Data Warehouse, BI and Problem Solving related to decision making in business environment. Training duration will take 4-6 weeks. The LMS for online training is Moodle, an open source software. Instructors will give feedback and scoring.
- *Face-to-Face Training.* Students will practice in SQL Server 2008 R2 for Data Warehouse repository and Microsoft Excel for application of BI. It will take 3 days of training at the designated location, at the moment at STOU main campus. Students will practice of how to install software and

deployment of the software with the pre-organized situation of case study as business simulation. Each student will be assigned the roles in the group to support business functions such as salesperson, marketing, manager. Groups work and the analysis of data in the case study will be demonstrated to the class with open questions from their peers and instructors.

4. *Evaluation and Review.* Instructors will evaluate the performance of individual and group in these criteria:

- Leadership and teamwork. The evaluation will perform in term of contribution and collaboration of students in their work. Effort of each student to the team.
- Analytical thinking. This will be evaluated in term of analysis reports with comprehensive features extended from the case study of students in the group. Suggestion to improve better model for the case study will be helpful for more effective toolkit and skill development.
- Communication skill in both written reports and oral presentation. The group reports are focused on comprehensiveness and completeness of student work. Oral presentation will be evaluated for every student according to the business role assigned.
- Technical skill. This will be evaluate in term of the usage of software functions to access easily and support of decision making in business environment more effectively.

Students in the class can also review their peer performance in the same criteria as instructors, but no effect for the score, just only feedback for improvement.

### *Conclusion*

Business Intelligence is one of the areas in ICT for special skill to achieve. In ODL, anyone can learn anywhere anytime with their self- pace. Therefore, to assure the quality of the program, skill development is concerned for professional competency. STOU ICT program at graduate level develop a toolkit in Business Intelligence for skill development to serve students in both online and face-to-face training. Competency expectation of skill development after practical training covers in technical skill, communication skill, leadership and team work, and analytical thinking. There are still some limitation of the toolkit and practical training software. Since the training software is a commercial software, the copyright issue is in concerned. These limit the students to practice and access. Practical training software tool and up-to-date content of case study need to be revised. Advanced technology should be updated in the case study such as Web Analytics, Web Mining & Social Analytics; Big Data & Analytics with emerging trends and topics in business analytics including location intelligence, mobile computing, cloud-based analytics, and privacy/ethical considerations in analytics (Ramesh Sharda and others, 2015)

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# Quality and service determine the future of the Open University

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**Abstract-**The Open University is an alternative institution of higher education which has alternative educational features. Comparing to the strong mainstream higher education institutions, the Open University locates in a weak position and has to find living space on the edge of the mainstream higher education institutions. This kind of survive is called marginalized survival. But for Open University, marginalized survival will not bring sustainable development. The fade of Broadcasting and Television University is a case in point. It is essential for the Open University to pay more attention to develop instead of being conservative. In fact, the alternative education and mainstream education are always in the mutual conversion. So the Open University becoming the representative of the future university is the tendency of higher education development. However, if the Open University wants to achieve substantial development into mainstream higher education institution, high quality is an essential requirement and perfect learning support service is the necessary condition. In other words, quality and service determine the future of the Open University.

**Keywords-** quality; service; the Open University; alternative education

## Introduction

Open University is the product of information technology development and higher education expansion. It emphasizes the lifelong education, breaks the traditional teaching model, uses the modern information technology to integrate high-quality educational resources, and provides a wide range of learning opportunities and services for the majority of people in society. As a result, it has been widely developed in the world. China has the largest distance education system which is called the Broadcasting and Television University, but had not established a real Open University until 2012. Several new universities have been established, but have they found their living space? Can they make progress in existing living space? These are questions currently under discussion on Open University, where there is no broad governmental authority to answer them. So to analyze the alternative education characteristics of the Open University may provide some good reflection about them.

## Concept definition

Alternative education, also known as non-traditional education or educational alternative, is the relative concept of mainstream education. It includes a number of

approaches to teaching and learning separate from that offered by mainstream education. Mainstream education is the mainstream not because it represents the country's or people's education purposes, but is the majority of all education institutions. (Huang Xiaoxing, 2004, p68) Mainstream education institutions always have the same educational philosophy and objective, practice the same or similar educational ways and methods, and exercise unified education policy. But the alternative education, as the name implying, is more individualized and shows more respect for the students. Comparing with the mainstream education institutions, alternative education institutions have more species but fewer in numbers. Additionally, the educational philosophy, educational purposes and educational ways or methods of them are always different from each other.

Most of the higher education institutions are ordinary higher education institutions in China. Most students of them are teenagers in the stage of growth; they all adopt full-time education; their teaching time is fixed; and the teaching form of them is more face-to-face. As we know, higher education is dominated by Chinese Government. The government implements a centrally organized management and hierarchical governance and pays more attention to the ordinary higher education institutions. Besides, the College Entrance Examination is still the main way to get higher education, so most of teenagers choose ordinary higher education institutions to study, which leads to more delivery of resources to them. In brief, ordinary higher education institutions are undoubted mainstream education institutions in China.

The Open University is a kind of new higher education institution which is supported by modern information technology and provides open and distance higher education for adult. (The Ministry of Education, 2012) According to the definition, Open University is not full-time education; most of students are adult and don't need take part in College Entrance Examination; the teaching time is flexible; the teaching form is web-based autonomous learning which is supported by remote service. By comparison, quite different from ordinary higher education institutions the Open University is a typical alternative education institution. As a kind of new higher education institution the Open University is vulnerable in the short term. But in the face of rapidly changing of environment, the Open University can reply quickly because of its alternative characters. So analysis its alternative education characters can help the Open University to find some ways to make sustainable development.

### Marginalized survival

Different from some open universities in other countries and regions, Chinese Open University is founded on the base of Broadcasting and Television University which has thirty-year educational history. So the construction of Chinese Open University is actually the inheritance and development of it. According to the definition of alternative education above, Broadcasting and Television University is also an alternative education institution. Its survival experience may be used for reference of the Open University's construction.

The large and rapid expansion of enrollment first appeared in the late 1970s, and it has been in part resolved by adjustment of the ordinary higher education institutions. But the demand was hardly fulfilled. So Chinese Government set up Broadcasting and Television University to provide higher education with small investment but wide coverage. It aimed to educate people who cannot enter the ordinary higher education institutions because of various reasons such as living in the rural and remote area.

Due to accurate orientation, Broadcasting and Television University has made great achievement which has educated about Seven million five hundred thousand diploma graduates and tens of millions of person-time continuing educators. Nowadays, the Broadcasting and Television University is still the largest distance higher education system. The Open University has similar characters with Broadcasting and Television University. Therefore, The Open University can find similar survival space in the edge of mainstream education institutions.

Some people may argue that even if the Broadcasting and Television University has made such great achievements but it still will quit the stage of history. If the Open University also uses marginal survival strategy, it will be possible to repeat the mistake of Broadcasting and Television University. This is not just a theoretical concern. In fact, with the continuous development and progress of higher education in China, the living space of marginalized survival is shrinking. Chinese government adopted reforming and opening-up policy in 1978 when the Broadcasting and Television University was established. At that time, there is a huge gap between the demand of higher education and the capacity of mainstream institutions. To this end, the Chinese government has increased higher education funding and established a lot of new higher institutions. The number of ordinary higher education institutions has increased year by year which reached 2491 in the end of 2013(The Ministry of Education, 2013). Since the enrollment expansion extensively in 1999, the higher education has been developed unprecedentedly in our country. Long-standing shortage of higher education supply has eased. Broadcasting and Television University lost a part of living space. In addition, with the development of information technology, the advantage of distance education in Broadcasting and Television University was no longer obvious. More and more ordinary higher education institutions have held “Network Education College” to implement distance education. Even in the traditional classroom, new education and learning ideas, new teaching and learning methods, new teaching and learning modes, new teaching and learning systems and new teaching and learning standards are practiced. As everyone knows, the diploma education form of Broadcasting and Television University is joint education with some key universities. Just as the paper analysis above, in this new historical period, this kind of diploma education form has lost competitiveness and the Broadcasting and Television University must change to survive.

The Broadcasting and Television University realized it must adjust and begin to change. It adjusted its teaching form from listening radio and watching television to comprehensive using of a variety of media; it adjusted its teaching resources from book and audio-visual materials mainly to integrated teaching resources databases which contains text materials, computer courseware, online video and so on; it changed its



teaching method from the teachers teaching and students listening and watching to diversified interactive teaching mode etc.. But all these adjustment are not directed against the changing of living space. According to America famous educational sociologist Martin Trow's Mass Higher Education Theory, higher education in china had entered upon a mass seedtime in 2002. From mass higher education to universal access, there is a greater distance. And in recent decades, the number of non-traditional students is growing. They are mature, employed, studying part time, aiming at employment and their purposes are to gain useful skills and knowledge and to cultivate ways of thinking and feeling. But the Broadcasting and Television University still sticks to implementing the original diploma compensation education which is becoming increasingly unacceptable by people.

The Chinese Government grants Open University independent diploma awarding powers and it has less dependence on ordinary higher education institutions and more flexibility to respond on the new environment. So it should insist on its alternative educational characters to provide more suitable education to those non-traditional students.

#### Development to mainstream

Enough space for survival doesn't mean enough for development. Depending only on the current marginal living space, the Open University cannot achieve further development. In the view of the history of higher education, mainstream education and alternative education are always in the mutual conversion. The coming society is information society, knowledge society, global society and learning society. UNESCO had proposed that every university should become the "open" university to provide distance learning opportunities in space and to provide learning opportunities in different time.( UNESCO, 1996) In the new society, the imagination is slowly put into reality. For Open University, it is a golden opportunity to become mainstream education institution. As we know, the Open University is an adult higher education institution. Even the construction of Open University in China likes a raging fire. It still cannot compete with the ordinary higher education institutions. What is the opportunity for Open University to become mainstream education institution?

With the development of information technology, digital technology has become a part of our daily life. The learners' living environment and their way of living have changed a lot. People growing up in this environment are a generation of "digital natives" whose thinking modes have changed at all. (Marc Prensky, 2001)For their education, one of the biggest problems is traditional education modes can't suit them. They need education in digital language and digital ways. It's more difficult for ordinary higher education institutions to change and fulfill digital natives' requirement than Open University. Because of the construction of Open University based on the modern information technology, it can be easier and better to adapt to future learning.

In addition, according to Martin Trow's new conception, universal access is changed from higher and higher levels of enrolment in colleges and universities by

students of traditional college age, to one of participation in lifelong learning online in homes and workplace. (Martin Trow, 1998, p1) Most of people almost include all adults at home or at work will be closely connected with each other by continuing education. This kind of education is no longer relying on the traditional college or university campus, but on distance education. The purposes of most students studying are not to gain degrees and credits, but to be capable of maintaining or improving their position in the job market or pleasure for enjoyment. Therefore, on the period of transition from mass higher education to universal access, demand for low level diploma education has fallen; at universal access, demand for vocational training and leisure education services will keep expanding. The Open University's characteristics such as open, flexible, lifelong, inclusive are consistent with the future trend of the higher education development.

In brief, whether considering from the external environment or the transform of higher education, Open University has the characteristics of future mainstream higher education. It shouldn't satisfy with marginal survival, but should strive to become the mainstream higher education institution in the future.

#### Quality and Service Determine the Future

Mainstream development is the ideal state of Open University's construction. At present, as an alternative education institution, the Open University has to choose marginal survival. From marginal survival to mainstream development, Open University must find starting point for construction. No matter what kind of education institution, the educational purpose is consistently that is cultivating people. In the future, people will ask for more flexible study manners. They may transfer from formal higher education institutions to work and return to the same or different institutions to go on study part-time, and vice versa. So in terms of education result, the evaluation standard of professional knowledge should unify among all kinds of higher education institutions. If the credits of the Open University are unacceptable for other institutions, it will have a rough to survive not to mention development. And almost all of the students in Open University have study problems in both space and time. So the Open University cannot reduce the professional education requirements to win the social and peer-reviewed approval as a qualified university, but give students more influence to get competence. So the high quality is an essential requirement for Open University's development.

The ultimate goal of Open University is to become the mainstream institution. In knowledge society, any knowledge will be replaced sooner or later. The students of Open University always cost more time to gain knowledge they once needed but the knowledge may out-of-date when they have got. So in addition to professional education, the Open University must give students more. It should train students to think, analyze and express in order to improve the students' comprehensive quality. Besides, it is more important to help the students to master the general learning skills which could benefit their whole life. Learning how to learn and autonomous learning is the special quality awarding the Open University can give to the students. Studying at

Open University, students can choose their learning content, learning time, learning place, learning manners and learning forms freely. In order to give students more, the learning resources of Open University should be comprehensive and pay more attention to humanistic quality. The most suitable is the best. If the Open University can suit all kind of lifelong learning need, it will have sustainable development.

In addition, as mentioned above, with more and more popular application of modern information technology, Open University and the mainstream ordinary higher education institutions are growing convergence. Living in the same society, Open University notices the trend of the future, as well as the ordinary higher education institutions. It is indicated in more and more ordinary higher education institutions joining into the MOOCs platform. Using modern information technology, the ordinary higher education institutions made their courses online and networked which caused the learning restrictions including time, payment ability and learning place began to disappear. But they ignored the specific future students—Digital natives. If the higher institutions only provide high quality learning resources without tracking and feedback timely, the students may lose interest and motivation of learning and learning process may never begin. Comparing to the mainstream higher education institutions, the Open University has a unique advantage that it improves and make learning support service perfect. The learning support services could make up the inadequacy of distance education at past, and in the future, it also can help the Open University to fulfill their quality standard. So the improved and perfect learning support service is the necessary condition of Open University.

In brief, quality and service determine the future of Open University.

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# **The quality assurance standards system: Research and practice in the Open University of China**

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## **Abstract**

Quality assurance for open and distance learning is one of the main concerns among distance higher education. Standards are the key factors for quality assurance. This paper examines the experiences of OUC, which has initiated a research on quality assurance standards systems recently. The process of standards system construction can be divided into three steps. Firstly, it carried out an international comparative among the AAOU Quality Assurance Statements of Best Practices by AAOU, the European Association of Distance Teaching Universities by EADTU, Quality Assessment for E-learning: a Benchmarking Approach by EADTU, Quality Assurance Toolkit for Distance Higher Education Institutions and Programmes by COL, the UK Quality Code for Higher Education by QAA. Secondly, it summarized the CRTVU's research and practice on quality assurance standards. Thirdly, it constructed a quality assurance framework and made the standards system for OUC, based on the international experiences and OUC's new requirements. The standards system concludes 6 first-class indicators and 18 second-class indicators and 98 three-class indicators. It also defined the standards' connotation and benchmarking.

**Keywords:** Quality assurance; quality standards system; the open university of China

## **Introduction**

With the rapid development of open and distance education, the contradiction among scale, quality and efficiency has been more prominent, especially for the huge open universities. Quality has always been an important issue in open and distance education. Since open and distance education's inception and subsequent widespread diffusion, open and distance education has been increasing access to education, and made great contribution to the higher education popularization. Concerns about the quality of the distance and education provisions have been of central importance and subject to study. since the 1990s, quality assurance in open and distance education has gained serious attention by insitutions, stake holders, and scholars. The 'total quality approach', which covers not only products but services and processes as well, is a very useful methodology that holistically examines the processes of open and distance education as an integrated whole(Zuhairi, Purwanto & Isman, 2002).

For the open university of China (OUC), the largest number students in the world, quality assurance has been more important, which has been defined as "systematic management and assessment procedures adopted by higher education institutions and systems in order to monitor performance against objectives, and to ensure achievement of quality outputs and quality improvements"(Harman, 2000, p.1). During the development of OUC, quality assurance has always been a great challenge due to the complex operational systems and organizations. According to the requirements of open and distance education,

Realizing the change is difficult to achieve, coupled with the need to increased the accountability of quality standards, OUC must has a relative complete quality standards system, which would ensure the realization of OUC's mission and vision, and become an efficient and effective institution, making good use of total quality management. has put important roles on quality standards construction.

## **Typical International Quality Standards Comparison**

### **1. International Quality Standards Generalization**

In fact, quality standards construction has been paid important attention by many international orgnizations, such as AAOU(Asian Association of Open Universities), EADTU(European Association of Distance Teaching Universities), COL(Commonwealth of Learning) and QAA(the Quality Assurance Agency for Higher Education). These orgnizations made great efforts on standards construction from diverse aspects. By comparison, we could find the common rules and characters on standards construction, in order to construct and make perfect the OUC quality standards system.

AAOU Quality Assurance (A-QA) Framework is best described in statements of Best Practices of generally applicable in quality Open and Distance Learning provision. It encompasses the following ten components, (1) Policy and planning;(2) Human

resources;(3) Internal management;(4) Learners and learners' profiles;(5) Program design and curriculum development;(6) Course design and development;(7) Learner support;(8) Infrastructure, media and learning resources;(9) Learner assessment and evaluation;(10) Research and community services. For each component, it states the quality standards in the way of best practice, in order to guide practice.

Quality Assurance Toolkit by COL is a generic document on quality assurance, complete with a glossary of terms used in open and distance education. In this document, it proposes performance indicators so that institutions can gauge their own performance trends, which including (1)vision, mission and planning; (2) management, organizational culture and leadership;(3) the learners; (4)human resource development;(5) programme design and development; (6) course design and development;(7)learner support and progression; (8)leaner assessment and evaluation; (9)learning infrastructure and resources; (10)research, consultancy and extension services. Besides, it also provide the criteria standards, performance indicators, sources of evidence and numerical weighting descriptor.

Quality Assessment for E-learning by EADTU is a manual to provide a set of benchmarks, quality criteria and notes for guidance against which e-learning programmes and their support systems may be judged. It covers the following items, (1)strategic management; (2) curriculum design; (3)course design; (4)course delivery; (5) staff support; (6)student support. The manual is seen as a reference tool for the assessment or review of e-learning programmes and the systems which support them.

The UK Quality Code for Higher Education (the Quality Code) is used to assure the standards and quality of UK higher education, which is not applied for open and distance institutions, but for all of the higher education institutions.The Quality Code sets out the formal Expectations that all UK higher education providers reviewed. It provides a shared starting point for setting and maintaining the academic standards of their high education programmes and awards, and assuring the quality of the learning opportunities they provide for studens. For enhancing academic quality part, it consists of (1)programme design, development and approval; (2)recruitment, selection and admission to higher education; (3) learning and teaching; (4)enabling student development and achievement; (5)student engagement; (6)assessment of students and recognition of prior learning; (7)external examining; (8) programme monitoring and review; (9) academic appeals and student complaints; (10)managing higher education provision with others; (11)research degrees.It consists of a General introduction and a series of seperate standards, such as threshold academic standards, academic standards, and academic quality.

## **2. Comparison Analyses**

### **1) Indicator Design**

Indicators are the main structure of the quality standards. According to the four international quality assurance framework we selected, we find that there exists great similarities among them, especially for AAOU and COL, which exist much more

similar. We could be seen in table below.

Table 1 quality assurance indication comparison

Indicators	QAA	EADTU	AAOU	COL
Policy and planning	⊙	√	√	√
Organization Management	⊙	⊙	√	√
Human resources	⊙	√	√	√
Learners	⊙	⊙	√	√
Programmes design and development	⊙		√	√
Courses design and development	⊙	√	√	√
Learning and teaching	√	⊙	⊙	⊙
Teaching resources	√	⊙	√	√
Learner support	√	√	√	√
Learning evaluation	√	⊙	√	√
Research	⊙		√	√
Extension service	⊙		√	√

√ means the indicator have the similar name

⊙ means the indicator contains the relative content

## 2) Standards Connotation

Standards is the measure or guidelines of things, which aims to ensure that materials, product, processes and services to meet the needs. It is the key content of the quality assurance. Standards defines each element's requirement and objectives, the staff's rights and obligations, especially the best practices of how to do well in open and distance education.

For what is "best practice standards", there are many different viewpoints. In the field of education, in general, the "best practice standards" follows the meaning: (1) the basic understanding o guide towards success; (2) focus on continuous quality improvement; (3) refer the main indicator variables for the entire reform process management, bridging the gap between current practice and practice-class institutions.

Based on the understanding of standards, we could find that the above four international quality assurance set out the best practices towards each indicator, in order to get quality improvement by total quality management.

## 3) Methods and Effectiveness Analysis

For the quality assurance standards, they could be used by institutions to conduct formative and summative self-evaluation of the performance of their process in order to make necessary adjustments and changes for quality improvement. Besides, it could

also be used by outer organizations to monitor the processes for continuous learning and ongoing improvement. In this way, the quality standards can help to achieve uniform standards and guide the institutional agendas to address more directly the requirements for quality provision and to meet the expressed needs of learner.

Practically, the institutions paid more attention to quality management and quality improvement based on the quality assurance standards. Institutions formulated their quality assurance system, and began to promote the whole staff to realize the importance of quality. Besides, it help the social members recognize the institution's quality more exactly and comprehensively, and eliminate the quality prejudice on open and distance education.

### **CRTVU's Research and Practice**

Since CRTVU is founded in 1979, it has always paid much more attention on quality and quality assurance construction. During the past 30 years, CRTVU has set out lots of documents for clear rights and obligations to manage the process more effectively, carrying out in the role of quality standards. CRTVU constructed the basic quality assurance system, which is characterized by “five unification” and “five elements”. “Five unification” are refer to unified instructional plan, unified curriculum standards, unified textbook, unified test and unified evaluation standards. “Five elements” are refer to instructional resources, learning process control, learning support service, instructional management and system operation. Due to the CRTVU's multi-level management organization and complex elements, it has not formulate an entire organic quality standards system, such as policy setting , performance assessment, and learner support service, etc. The quality standards are still need to perfect, to formulate an organic system.

### **Reconstruct OUC's Quality Standards Systems**

In 2012, OUC was transfer from CRTVU with new vision and mission, according to the national educational revolution plan. With the promotion of OUC's construction, quality is lifted to an unprecedented level. It has become the focus by government, social members, teaching staff and learners. Based on it, OUC carried out a national research on quality assurance, especially on quality standards.

In the process of the research, we carried out the international comparison research on quality assurance standards which has been stated above. Besides, we developed quality indicators to address OUC's unique institutional needs and relevance within the Chinese higher educational context, based on the international relative research and practice.

In the development of quality indicators and standards, we tried to reflect the following characters, (1) make accordance with international quality rules; (2) fit for the OUC's requirements and features; (3) centered on learners and quality; (4) total quality process management; (5) result-oriented management culture.



According to the process of students cultivation in OUC, the indicators of the quality assurance standards systems developed are 6 first-class indicators and 18 second-class indicators. The 6 first-class indicators are vision and mission, conditions, programme, curriculum and resources, instructional process implement and management, research and extend service, evaluation and feedback. Among the second-class indicators, we emphasized the following factors, such as organization system construction, ICT environment, teacher team, learner support and service. All of the indicators, it is absorbed the six model innovation, respectively technology support model innovation, resources constructional model innovation, intelligent management model innovation, project research model innovation.

For the entire quality assurance standards system, suitable and practical standards are the core. In the process of system development, we emphasis the concept explained clearly, working process definitely, and aimed to set out the best practices.

## **Conclusion**

In fact, the research and practice of OUC's quality assurance standards are still on the road, and there still have many difficulties to overcome. The objective is to embed quality assurance into all institutional activities from planning and design to implementation and to achieve institutional ownership of and commitment to a culture of quality that will lead to quality enhancement and institutional excellence. As the work progressed, there will be more international and national agencies and institutional to share the experiences and promote hand in hand the quality assurance construction.

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# Developing a teacher evaluation checklist for Payame Noor University

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In general, teachers make strong contribution in learning outcome of students. Payame Noor University (PNU) as a pioneer of distance learning in Iran has used an evaluation checklist of traditional universities developed by ministry of education, although its 'educational system is totally different from that of traditional universities. This checklist does not take into account educational specification of distance learning universities. Therefore, the present study aims at designing an evaluation checklist on the basis of the characteristics of distance learning education. To this end, teacher evaluation checklist is designed including factors such as using technology, considering time limitation, interactive method of teaching, problem solving skill, and questioning skill of teachers. To assess the content validity of the designed evaluation checklist and appropriateness of the items, the checklist is distributed among 35 of PNU professors and 63 students at BA, MA, and PhD levels. Finally, some of questions are revised and another part consisting of the percent of students' attendance in the problem solving classes is also added to checklist. At last, It should be noted that the ultimate goal of the present evaluation checklist is to make PNU teachers aware of distance learning educational system and change their academic behavior since there is scant attention at PNU to in-service teacher training courses.

Key words: Distance learning, evaluation checklist

## Introduction

Payame Noor University as a pioneer of distance learning has completely different educational system comparing to other universities in Iran. PNU as a distance learning university enjoys both e-learning and part-time courses. Part-time courses at PNU decreases the necessity of students' attendance in classes through using educational technology, self-study textbooks, and learner- centered educational environment. In fact, learning classes are changed to reviewing classes. The advantages of distance learning are learner- centeredness, self- study, and wide educational coverage. Consequently, the educational system of Open University leads to decreasing of expenses and requiring less training aids comparing to the traditional system of education. The most important aim of Distance University is to eliminate barriers related to place, time, and traditional educational system. Distance learning university provides deprived learners who could not attend universities due to time limitation,

working condition, and geographical position with higher level education. This educational system facilitates learning through using technology and assigning the learner with more responsibility.

### The context of the study

Payame Noor University as an open university uses teacher evaluation checklist of the traditional universities. Therefore, faculty evaluation in this university is not in accordance with the educational system of the university since teachers play different roles in these two educational systems. Rice (2003) believes that teaching is a complicated action which is influenced by teacher's characteristics, in which students' success can be predicted based on the teacher's capabilities. In general, high-quality teachers make strong contribution in learning outcomes. Bandura (1997) states that findings on teacher quality or efficacy is important since teachers' judgments about their teaching competence influence teachers' practice in terms of efforts, goals, and challenges they set up for themselves and for their students. Hence, PNU should focus on faculties' quality to achieve its educational goal and students' satisfaction.

### Participants

Participants of this study are university students studying at BA, MA, and PhD level and university professors teaching at these levels. It should be noted that this research is conducted in Tehran province of PNU. The demographic and academic features of both groups are illustrated in the following tables:

sex		Last degree		PNU faculty		Faculty of other universities						Policy maker at PNU		Management experience at PNU		
female	male	PhD	MA/ MS	Yes	No	Yes	No	Visiting	Lecturer	Assistant	Full prof	Yes	No	Yes	No	
51.4	48.6	22.9	77.1	45.7	54.4	94.3	5.7	28.6	20	86	20	22.9	20	80	31.4	68.6

Table 1. The Demographic and Academic Features of Professors

Sex					Branch		
Male	Female	BA	MA	PhD	Tehran	Shahrriar	Shahre Ghods
37.1	62.9	43.7	38.5	17.7	72.6	17.7	9.7

Table 1. The Demographic and Academic Features of Students

## Instrumentations

This study aims at designing an evaluation checklist for PNU as Open University. First, the previous evaluation checklist is analyzed, then, considering the background theories related to distance learning and the educational structure of PNU, the researcher designed an evaluation checklist. The designed evaluation checklist in the form of questionnaire is distributed among professors and students. The questionnaire asks students and professors to determine the appropriateness of each item in evaluating PNU professors. Furthermore, students and teachers were asked to write their ideas about each item.

## Procedure in Designing the Questionnaire

The theoretical background of each question and the effect of the context of the study on developing each question are explained in this section.

Seller (2001) states that distance learning university teacher should have technological literacy to facilitate learning and increase her efficiency in education. Seller argues that teachers should know how the technological literacy leads to availability of education for all and eliminates the barrier related to time and place. Hence, the following questions were added regarding the importance of technology in education:

- A. Professor uses internet to help students and respond their questions. " making chat room or web log"
- B. Professor uses different software when teaching.
- C. Professor uses the PowerPoint files developing for each course.

Davis and Roblir (2005) declared that distance education teacher should posses the following abilities:

- Planning and designing the syllabus in order to eliminate the time limitation and the problems related to the location

- Doing group works to deliver the content better
- Using questioning strategy

So, the following question was added to the evaluation checklist

**D.** Professor presents the syllabus and time budgeting for delivering the materials.

Isman and Altinay (2004) state that distance education increases independence of the learner and leads to self-directed learning. Teachers as a facilitator of self-directed learning should illuminate her role for students. That is, distance education teacher should ask question and help the learner to discover the answer of the question. Therefore, the following questions were added to the evaluation checklist:

- E.** Professor is aware of the teaching methodology of distance education university.
- F.** Professor discusses rather than delivers lecture in the class.
- G.** Professor directs classroom discussions.
- H.** Professor is familiar with the study skill of distance education university.

### **The Effect of the Context of the Study on Designing the Questionnaire**

According to educational rule of PNU, students are not forced to attend the theoretical classes. So, some students' ideas are not taken into account in evaluating teachers. Consequently, the designed evaluation checklist is divided into two parts: If the students attend 25% of the classes, they should fill the first part of the form and If they do not attend the classes, they should answer the second part of the questionnaire. In the second part, students identify the reasons of not attending in the classes which can be considered as a research source for PNU.

### **Discussion**

The students of Distance Education universities study through correspondence education, e-learning, or integrated approaches. Teacher's role, student's role, classrooms, the method of delivering material, the interaction model of students, and book budgeting in distance education should be treated differently. One of the problems of distance education which students face with is students' unawareness of its system. Students attend distance learning university; however, they do not have enough information about its educational system. Moreover, professors themselves mostly studied in traditional universities and they do not believe in educational system of distance learning university. One of the glaring inconsistencies emerges in the evaluation of teachers at PNU is using of traditional universities' evaluation checklist for professors' evaluation. Traditional evaluation checklist was not well suited to PNU due to the following reasons and the aim of the present study is to develop an evaluation checklist for PNU as distance learning university.

1. Traditional evaluation checklist did not take into account the idea of the students not attending the classes. The new observation checklist takes into account the percent of students' attendance in the classes and it has two parts. The students attending 25 % or more in the classes should answer the first part of the evaluation checklist and students who do not attend in the classes should answer part B.
2. Since the attendance in PNU part-time classes is not compulsory, traditional evaluation checklist do not provide us with the true quality of professors. Hence, traditional evaluation checklist is not valid and reliable for distance learning university. According to Bachman (1990), reliability refers to the consistency of measures across different times, test forms, raters, and other characteristics of the measurement context. Inconsistency of the presence of students in PNU classes leads to inconsistency of students' responses to evaluation checklist. Hence, the design of new evaluation checklist reduces the risk of unreliability in evaluating teachers.
3. The designed evaluation checklist takes into account the educational structure of PNU as a distance learning university. The designed evaluation checklist involves problem-solving skill, teacher- student interaction, questioning skill and self-study skill. The ultimate aim of this questionnaire is to change the academic behavior of the professors at PNU focusing on the desired educational behavior of professors.
4. Traditional evaluation checklist did not cover different forms of online interaction of students and teachers. The designed evaluation checklist asks students whether teachers use email, course power points, and on line interaction.
5. Traditional evaluation checklist did not take into account time budgeting and teachers' coverage of the syllabus. However, the new evaluation checklist asks students whether professors cover the whole syllabus in the specified time limit.

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# **Determining distance education learners' cognitive processes and levels of reflection using Web blogs**

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## **Abstract**

A written composition reflects the cognitive processes involved in its production. In the academe, reflective writing is used as a means of learning and developing higher order thinking skills, such as critical thinking and metacognition. Among the forms of reflective assignments for students is journal writing. In the distance learning environment, eJournals, such as Web blogs, can be used as a platform for journaling and reflective writing. This study aims to determine the cognitive processes and levels of reflection of distance education (DE) learners using their Web blogs. These Web blogs were analyzed using the content analysis method. The revised Bloom's Taxonomy by Anderson and Krathwohl (2001) was used in identifying the cognitive processes employed by the learners in writing their reflective outputs while Hatton & Smith's (1995) Types of Reflective Writing was utilized in determining the students' level of reflection. Seventy (70) Web blog entries by seven DE learners who completed an undergraduate course on Instructional Media Resources were analyzed for this study. The results suggest that the type of reflection usually undertaken by the students in writing their reflective Web blogs are Descriptive Reflection and Descriptive Writing, for which the cognitive processes mostly utilized are remembering and understanding. Based on the study's findings, reflective writing through the use of Web blogs can be valuable in formative assessment as the learners' cognitive skills and levels of reflection can be examined through these written outputs. Furthermore, in facilitating reflective writing assignments, such as Web blogging, a methodical approach directed towards the consistent employment of dialogic and critical types of reflection among DE learners should be purposefully implemented.

**Keywords:** Web blogging, reflective writing, cognitive processes

## **Introduction**

This study aims to explore the utility of reflective Web blogs as a formative assessment tool to determine and evaluate the cognitive processes and the types of reflections being used by distance education (DE) learners to write about their learning. Furthermore, this research shall also assess the types of reflection the students are more inclined to exhibit in writing their reflective Web blogs.

The questions that the study shall answer are:

1. What cognitive processes are activated by reflective writing through Web blogs?
2. What type of reflection is exhibited in students' Web blogs?



## Background

Engaging in reflective practice has the potential to develop higher order thinking skills among students. According to Boud (2001), reflection is the process of understanding and making meaning out of one's experiences. It allows one to connect theory and practice together (Boyd, Dooley, & Felton, 2006). Through reflection, learners are able to think about their learning and are able to develop their deductive and evaluative abilities (Hinett, 2002).

There are several tools used in the academe to initiate and encourage reflective writing. One of which is through writing learning journals. Learning journals offer several advantages to learners. Moon (2003) cited some of the benefits of journal writing:

1. fostering of independent learning as students write their journals themselves and organizes the information that they include in their learning journals,
2. facilitation of reflective thinking as a result of the students' effort to understand and make personal connections to what they are learning,
3. development of metacognition, and
4. enhancement of learning through the practice of writing itself, which encourages the students to refine and effectively communicate their ideas.

In an online, distance education (DE), Web blogs can serve as a medium for reflective journal writing. Students can store their reflections about their learning in their Web blogs, which can provide teachers with information regarding the students' understanding and personal thoughts and emotions (Dos & Demir, 2013). In a study by Yang (2009), blogging has been found to be a good platform for reflection as it allows flexibility in terms of "time and space" (p. 18) and provides venue for discussion and exchange of ideas.

## Methods

This research utilizes qualitative research methods, whereby, deductive approach of content analysis was used to determine students' cognitive processes and the types of reflection employed in writing their reflective Web blogs. Deductive content analysis makes use of earlier theory and links it with the current data or context being analyzed (Elo & Kyngas, 2007; Mayring, 2000). In this study, the theoretical foundations used for coding and categorization in the content analysis of the Web blogs are Krathwohl and Anderson's (2001) Revised Bloom's Taxonomy and Hatton and Smith's (1995) Types of Reflection. These models served as bases for evaluating the cognitive processes and the types of reflection employed in the students' reflective Web blogs.

The Revised Bloom's Taxonomy (RBT) organizes the cognitive processes into six categories, each with their own subtypes. In the RBT, the categories that are in noun form in the original Bloom's Taxonomy were replaced with verbs to represent the cognitive processes in active mode. The categories of cognitive processes are arranged in hierarchy with *remember* at the lowest level and *create* at the highest. The revised taxonomy of the cognitive domain (Krathwohl & Anderson, 2001) is shown in Table 1.

Table 1

*The Cognitive Process Dimension*

Categories & Cognitive Processes	Alternative Names	Definitions
1. Remember – Retrieve relevant knowledge from long-term memory		
1.1 Recognizing	Identifying	Locating knowledge in long-term memory that is consistent with present material
1.2 Recalling	Retrieving	Retrieving relevant knowledge from long-term memory
2. Understand – Construct meaning from instructional messages, including oral, written, and graphic communication		
2.1 Interpreting	Clarifying, paraphrasing, representing, translating	Changing from one form of representation to another
2.2 Exemplifying	Illustrating, instantiating	Finding a specific example or illustration of a concept or principle
2.3 Classifying	Categorizing, subsuming	Determining that something belongs to a category
2.4 Summarizing	Abstracting, generalizing	Abstracting a general theme or major point(s)
2.5 Inferring	Concluding, extrapolating, interpolating, predicting	Drawing a logical conclusion from presented information
2.6 Comparing	Contrasting, mapping, matching	Detecting correspondences between two ideas, objects, and the like
2.7 Explaining	Constructing models	Constructing a cause and effect model of a system
3. Apply – Carry out or use a procedure in a given situation		
3.1 Executing	Carrying out	Applying a procedure to a familiar task
3.2 Implementing	Using	Applying a procedure to an unfamiliar task
4. Analyze – Break material into its constituent parts and determine how the parts relate to one another and to an overall structure or purpose		
4.1 Differentiating	Discriminating, distinguishing, focusing, selecting	Distinguishing relevant from irrelevant parts or important from unimportant parts of presented material

(continued)

Table 1

*The Cognitive Process Dimension*

Categories & Cognitive Processes	Alternative Names	Definitions
4.2 Organizing	Finding coherence, integrating, outlining, parsing, structuring	Determining how elements fit or function within a structure
4.3 Attributing	Deconstructing	Determine a point of view, bias, values, or intent underlying presented material
5. Evaluate – Make judgments based on criteria and standards		
5.1 Checking	Coordinating, detecting, monitoring, testing	Detecting inconsistencies or fallacies within a process or product; determining whether a process or product has internal consistency; detecting the effectiveness of a procedure as it is being implemented
5.2 Critiquing	Judging	Detecting inconsistencies between a product and external criteria; determining whether a product has external consistency; detecting the appropriateness of a procedure for a given problem
6. Create – Put elements together to form a coherent or functional whole; reorganize elements into a new pattern or structure		
6.1 Generating	Hypothesizing	Coming up with alternative hypotheses based on criteria
6.2 Planning	Designing	Devising a procedure for accomplishing some task
6.3 Producing	Constructing	Inventing a product

*Note.* From *A taxonomy for learning, teaching and assessing: A revision of Bloom's taxonomy* p.67-68, by Anderson, Lorin W. & Krathwohl, David R., 2001, New York. Longman Publishing.

In analyzing the types of reflection exhibited in the Web blogs, Hatton and Smith's Type of Reflection was utilized. According to Hatton and Smith (1995), there are four types of reflective writing: *descriptive writing*, *descriptive reflection*, *dialogic reflection*, and *critical reflection*, whose definitions and examples are shown in Table 2.

Table 2

*Criteria for the Recognition of Evidence for Different Types of Reflective Writing*

Types of Reflective Writing	Descriptions	Examples
Descriptive Writing	Not reflective. Description of events that occurred/report of literature. No attempt to provide reasons/justifications for events.	
Descriptive Reflection	Reflective, not only a description of events but some attempt to provide reason justification for events or actions but in a reportive or descriptive way. Recognition of <i>alternate</i> viewpoints in the research and literature which are reported. - Two forms: a. Reflection based generally on one perspective/factor as rationale. b. Reflection is based on the recognition of multiple factors and perspectives	“I chose this problem-solving activity because I believe that students should be active rather than passive learners.”  Tyler (1949), because of the assumptions on which his approach rests suggests that the curriculum process should begin with objectives. Yinger (1979), on the other hand argues that the “task” is the starting point.
Dialogic Reflection	Demonstrates a “stepping back” from the events/actions leading to a different level of mulling about, discourse with self and exploring the experience, events, and actions using qualities of judgments and possible alternatives for explaining and hypothesizing. Such reflection is analytical or/and integrative of factors and perspectives and may recognize inconsistencies in attempting to provide rationales and critique.	“While I had planned to use mainly written text materials, I became aware very quickly that a number of students did not respond to these. Thinking about this now there may have been several reasons for this. A number of students, while reasonably proficient in English, even though they had been NESB learners, may still have lacked some confidence in handling the level of language in the text. Alternatively, a number of students may have been visual and tactile learners. In any case I found that I had to employ more concrete activities in my teaching.”

(continued)

Table 2

*Criteria for the Recognition of Evidence for Different Types of Reflective Writing*

Types of Reflective Writing	Descriptions	Examples
Critical Reflection	Demonstrates an awareness that actions and events are not located in, and explicable by, reference to multiple perspectives but are located in, and influenced by multiple historical, and socio-political contexts.	“What must be recognized, however, is that the issues of student management experienced with this class can only be understood within the wider structural locations of power relationships established between teachers and students in schools as social institutions based upon the principle of control” (Smith, 1992).

*Note.* Adapted from “Reflection in Teacher Education: Towards Definition and Implementation,” by N. Hatton and D. Smith, 1995, *Teaching & Teacher Education*, 11, pp. 33-49. Copyright 1994 by Elsevier Science Ltd.

In qualitative researches, sample size is usually small in order to facilitate depth of analysis of the social aspect being studied (Kumar, 2012; Marshall, 1996). For the purposes of this research, seven (7) DE learners who completed an undergraduate course on Instructional Media Resources in the University of the Philippines – Open University comprised the participants of this study. The students were given codes (P1, P2, P3, P4, P5, P6, and P7) to maintain their anonymity. Each student produced ten (10) reflective blog entries; thus, seventy (70) Web blog entries were subjected to content analysis.

Content analysis of the Web blogs was done by reading the individual blog entries and determining the type/s of reflection and the cognitive process/es manifested in each entry. Hatton and Smith’s Types of Reflection and Krathwohl and Anderson’s Revised Bloom’s Taxonomy were used as criteria for evaluation. Sentences and paragraphs served as the units of analysis. They were categorized based on (1) the type of reflection that the sentence/s and/or paragraph/s characterize and (2) the cognitive processes that are involved in writing them.

The process of reading, analyzing, and categorizing was done in three rounds. On the last round of content analysis, the researcher and an expert in educational psychology analyzed the blogs together and discussed and agreed on the coding and categorization of the units of analysis. After coding and categorizing the sentences and paragraphs in the entries, the frequencies of occurrence of each cognitive process were counted, as well as the number of students whose reflective writing falls under a particular type of reflection.

## Results

### Types of Reflection

The types of reflection describe the reflective writing the students have composed. Each type has a distinct characteristic in terms of content. *Descriptive writing* includes a report of experiences, events, data, or information. *Descriptive reflection* offers causation or justification but is usually based on personal point of view. *Dialogic reflection*, on the other hand, presents a multiple perspectives or hypotheses and varied explanations to an event; while *critical reflection* contains discussion of connection of an occurrence or issue to a larger social structure (Hatton & Smith, 1995).

The results of the content analysis of the Web blogs reveal that the participants' blog entries contain most, if not all, of the types of reflection. In the first three Web blogs, entries of three students display the four types of reflection. However, in the succeeding blogs, the majority of the entries manifest *descriptive writing*, *descriptive reflection*, and *dialogic reflection* as the students lack in developing *critical reflections*. (Refer to Table 3.)

Furthermore, results show that *descriptive reflection* is the type of reflection the students produced the most. Out of the 70 Web blogs analyzed, 66 contain *descriptive reflection*, while 43 include *descriptive writing* and 32 have *dialogic reflection*. Only five (5) Web blogs contain *critical reflection*.

Table 3

*Frequency of Students Using a Particular Type of Reflection per Web Blog Entry*

Types of Reflection	Frequency of Students										Total
	1	2	3	4	5	6	7	8	9	10	
Descriptive Writing	3	4	7	6	4	3	4	1	5	6	43
Descriptive Reflection	7	6	7	6	5	7	7	7	7	7	66
Dialogic Reflection	4	4	2	4	5	3	4	4	1	1	32
Critical Reflection	3	1	1	0	0	0	0	0	0	0	5

An example of a student's *descriptive reflection* is shown below.

Preparing the projected visual and audio materials were not easy for me especially that I am not so familiar with the topic. I mean, I know about global warming but I have never discussed this topic with anyone before. It is easier to prepare materials for topics that I am more familiar with or those that I have discussed with someone. In this way, I already have an idea on how to present the materials. I would like to believe that I have applied and followed the principles in preparing projected materials. First, I minimized the use of words, and if I did have words on a slide, I followed the rule of 6 (maximum of 6 words in a line, 6 lines on a slide). Second, the images I used are directly related to the topic. In fact, the images I used will help the learners further understand the concepts being discussed. Third, I used light text against a dark background to make the slides easier to read. I also used a sans serif font. Lastly, I made use of the recent knowledge I learned that the right hemisphere of the brain processes images, while the left hemisphere processes words. Hence, I placed images on the right, and the captions or explanations on the

left. I believe that the projected material I've made is simple, direct to the point, and, hopefully, understandable. (P3, para 2)

In this example, the student was trying to describe her experiences in creating visual and audio materials. She was also providing justifications for her claims on the difficulty she said she had in doing the required projected materials and on her assessment of her ability to apply the principles in developing projected instructional materials. In this reflection she was using *remembering* and *evaluating* cognitive processes. The sentences, "*Preparing the projected visual and audio materials were not easy for me especially that I am not so familiar with the topic. I mean, I know about global warming but I have never discussed this topic with anyone before. It is easier to prepare materials for topics that I am more familiar with or those that I have discussed with someone. In this way, I already have an idea on how to present the materials*" (P3, para 2), demonstrates *recognizing*, a subcategory of *remembering* thinking skill, wherein the student identified what made the task difficult and what would have made it easier for her. The second part of her reflection, on the other hand, illustrates *evaluating* cognitive process as she was assessing whether her work was able to comply with the guidelines in developing projected visuals.

The example presented demonstrates the student's application of multiple cognitive processes in writing a reflection, which is consistent with the other reflective Web blog entries that were analyzed. Table 4 presents the frequencies of cognitive processes used in each type of reflection. The data show that in writing a type of reflection a number of cognitive processes can be employed. It is shown that students who are constructing *descriptive reflection* tend to utilize *understanding* and *remembering* cognitive processes, though the *evaluating* thinking skill may also be tapped. For *descriptive writing*, the second type of reflection that the participants are inclined to compose, the cognitive process *remembering* is being adopted the most. *Dialogic reflection*, on the other hand, although was used less frequently, involves the utilization of *understanding* and *evaluating* cognitive processes.

Below is an example of use of *descriptive writing* and *remembering* cognitive process in the writing reflective blogs:

When I first started teaching in an English preschool, I will be very honest, I did not know what I was doing. It was the easiest job for me to get when I first came here in Japan, enough means to pay my bills. But I was stressed and frustrated mainly because I did not know what I was doing, how was I doing my job and how the hell I could make myself better. I graduated with a degree in Broadcast Communication and I thought teaching was a job anyone can easily do. And then I moved to a big international school. During my interview, it was clear that the reason they considered me for the job was because of my background in mass media more than my teaching experience. They wanted people who have good IT skills and can do documentation for the children. During faculty meetings, I was often finding myself being surrounded by people who were speaking words from another planet. (P6, para 1)

This example shows that the student was recounting a past experience, as such entails *recall*. No explanation of rationale nor justification and exposition were given in the anecdote. This lack of reflection is a feature of *descriptive writing*.

Table 4

*Frequencies of Cognitive Process in Each Type of Reflection*

Cognitive Processes	Subcategories	Descriptive Writing		Descriptive Reflection		Dialogic Reflection		Critical Reflection		Overall Total
		Freq	Total	Freq	Total	Freq	Total	Freq	Total	
Remember	Recognizing	29	85	57	100	5	8	0	0	193
	Recalling	56		43		3		0		
Understand	Interpreting	1		29		5		0		
	Exemplifying	1		15		4		0		
	Classifying	0		1		0		0		
	Summarizing	3	5	20	107	7	38	0	6	156
	Inferring	0		26		21		5		
	Comparing	0		14		0		1		
	Explaining	0		2		1		0		
Apply	Executing	0	1	1	4	0	2	0	1	8
	Implementing	1		3		2		1		
Analyze	Differentiating	0		9		6		0		
	Organizing	0	0	3	12	0	9	1	1	22
	Attributing	0		0		3		0		
Evaluate	Checking	0	0	2	51	4	29	1	2	82
	Critiquing	0		49		25		1		
Create	Hypothesizing	0		2		12		1		
	Designing	0	0	2	4	1	13	0	1	18
	Constructing	0		0		0		0		

**Cognitive Processes**

The cognitive processes entail the types of thinking the students used in the production of their reflective Web blogs, which may be *remembering*, *understanding*, *applying*, *analyzing*, *evaluating*, and *creating*. The lower order thinking skills is composed of the first three aforementioned cognitive processes, while higher order thinking skills includes the last three. Based on the data presented, all the cognitive processes in the RBT are activated in the writing of reflective Web blogs. However, students tend to access lower order thinking processes more in writing their reflective writings. The cognitive processes mostly utilized by the students are *remembering* and *understanding* (see Table 4.). An example of sentences that manifests *remembering* thinking is cited below.



Just this week, I had the chance to ask my elder sister who teaches in elementary grade about the importance of instructional media. She simply said that if these media are absent, teaching-learning scenario would turn out unproductive. According to her, just a simple picture on the board to be shown to the students can change the atmosphere in the classroom. She even added that, they make teaching convenient and less taxing. (P1, para 2)

The student, in the example, was narrating an event. Although explanations and reasons were presented, these were not borne from the students' own thinking process but provided by the elder sister the student was talking about. The statement was primarily a product of *recall*. Majority (53%) of the statements categorized under *remember*, belong to the *recalling* subcategory.

The second most frequently used cognitive process is *understanding*. Below is a statement in a student's Web blog entry which demonstrates this type of thinking. This example illustrates *inferring* as the student makes generalizations based on what she has learned from the experiences she had encountered in the course.

Interestingly, I realized that in designing and developing this project, it provided me learning experiences that made me (1) use higher order thinking skills as a student while doing it and (2) facilitate higher order thinking skills for the learner/ users of the multimedia instructional material I created. (P5, para 3)

Among the subcategories in the *understand* level, students use *inferring* the most (36%), followed by *interpreting* (24%). An example of a statement exhibiting *interpreting* is shown below. The student, in this example, described the concepts she had learned using her own words, which is a characteristic of the *interpreting* subcategory.

Projected materials are or Still projected displays are pictures shown upon a screen by use of a certain type of machine such as filmstrip projector, slide projector, overhead projector or TV/VCR. Traditional classroom set-up uses this kind of instructional material to support the lesson in a small group of audience, but I believe that it is still relevant in this new era. It provides greater enjoyment in learning, increases memory retention and compels attention of the students. (P7, para 1)

From the data presented, higher thinking processes were utilized less compared to the lower order thinking skills. However, among the higher level cognitive processes, evaluative thinking was tapped the most. Between the two subcategories of *evaluating*, *checking* (9%) and *critiquing* (91%), it is the latter which the students utilize more when they do evaluation. An example of the *critiquing* subcategory of the *evaluate* cognitive process is presented in the text that follows. In this example, the student applied *critiquing* in order to make a judgment on what he has to do in order to improve his skills in making projected visual materials.

One realization here is that I have to learn PowerPoint. I also need to schedule my time and be more aggressive in searching for resources that matches student aptitude and learning styles. Situations may not always permit full implementation (just like what happened) of the presentation so there should be backup strategies when using

projected visuals. Everything would be learned in time. This is my first time doing this. A second and third time will give room for better experimentation. (P4, para 6)

### Conclusions and Recommendations

Reflective Web blogs can be an effective formative assessment tool both for the teachers and the students. Through the Web blogs, the students can reflect on and process their learning and experiences in a course, which can give teachers ideas about where the students are in their learning. This can be used in making decisions on how to reinforce further learning and raise the levels of cognitive processing and the quality of reflections of the students. The information that the teachers will collect from the Web blogs can also aid them in developing modifications and improvements in the course content, delivery, and assessment.

From the data generated in the study, reflective Web blogs can bring to surface the cognitive processing and level of reflection the students are engaged in. A Web blog entry may elicit multiple cognitive processes and types of reflection. As the results of the content analysis have shown, students tend to utilize the lower order thinking skills *remembering* and *understanding* more, even though they have shown ability to adopt higher levels of thinking. The students are, likewise, inclined to engage in *descriptive writing* and *descriptive reflection*. This is indicative of the students' tendency to write with no apparent reflection to writing with minimal reflection or with the incorporation of one's personal reasoning only. From these findings, it is clear that there is a need to elevate the students' level of cognitive processing and reflection. The students should be stimulated to think beyond their own personal perspectives toward considering different point of views and possible reasons for an occurrence or problem, and be prompted to link issues to a broader context, such as socio-political implications and culture.

By using reflective Web blogs, teachers will be able to assess the cognitive processes and the types of reflections the students are using and, with this, be able to provide appropriate scaffolding to assist the students in exercising higher level of thinking skills, such as *evaluating* and *creating*, and practice reflection that explores multiple solutions and viewpoint to a problem or situation, and establish connections to the wider, more encompassing social system, which is distinctive of *dialogic reflection* and *critical reflection* respectively.

Apart from the advantages that the utilization of reflective Web blogs offer educators, the students themselves can benefit from the use of Web blogs as it can serve as a medium for self-evaluation. The RBT (Krathwohl & Anderson, 2001) and Hatton and Smith's Types of Reflection can be provided to students as evaluation tools for their blog entries. This will allow them to analyze and assess their own thinking skills and level of reflective writing, which can, in turn, encourage them to initiate self-improvements.

While writing reflective Web blogs can stimulate cognitive processes and activate the four types of reflection (Hatton & Smith, 1995), the students still tend to employ the lower order thinking processes and types of reflection. There is a need, therefore, to create a systematic method to enhance the students' cognitive processes and reflective

writing by providing scaffolds or prompts and integrating student self-evaluation using RBT (Krathwohl & Anderson, 2001) and Hatton & Smith's Type of Reflection as evaluation guides.

The findings of this study may be substantiated through further research with larger number of respondents. Examinations of strategies to improve students' level of cognition and reflection as exhibited in their reflective Web blogs is recommended.

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# **A survey of current opportunities for developing an automated assessment system for C/C++ programming assignments**

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## **Abstract**

In any educational system, no one can deny the importance of assessments. Assessments help in evaluating the knowledge gained by a learner at any specific point as well as in continuous improvement of the curriculum design and the whole learning process. However, with the increase in students' enrollment at University level in either conventional or distance education environment, traditional ways of assessing students' work are becoming insufficient in terms of both time and effort. In distance education environment, such assessments become additionally more challenging in terms of hefty remuneration for hiring large number of tutors. The availability of automated tools to assist the evaluation of students' work and providing students with appropriate and timely feedback can really help in overcoming these problems. Although, building such tools for assessing students' work for all kinds of courses is not yet possible. However, courses that involve some formal language of expression can be automated, such as, programming courses in Computer Science (CS) discipline.

Learning how to program is the core of CS discipline. It is also becoming an important part even in various academic disciplines. Programming skills can only be learned through practice. Instructors provide various practical exercises to students as assignments to build these skills. Usually, instructors manually grade and provide feedbacks on these assignments. Although in literature, various tools have been reported to automate this process, but most of these tools have been developed by the host institutions themselves for their own use. We at COMSATS Institute of Information Technology, Lahore are conducting a pioneer effort in Pakistan to automate the marking of assignments of introductory programming courses that involve C or C++ languages with the capability of associating appropriate feedbacks for students. In this paper, we basically identify different components that we believe are necessary in building an effective automated assessment system in the context of introductory programming courses that involve C/C++ programming. We further provide a survey of existing state of the art tools and techniques reported in literature for implementing these components. We also discuss those reported concepts and techniques that can help in making such system reusable with the capability of sharing its assessment objects in a secured manner.

**Keywords:** Assessment, programming courses, C/C++

## **1. Introduction**

Assessment is an essential part of any educational environment. There are broadly two types of assessments, i.e., formative and summative. Both types of assessments are considered to be necessary for improving curriculum design and the whole learning process. At higher education institutions (especially that follow semester system) that

belong to either conventional or distance education environment, teachers perform various tasks to achieve both formative and summative assessments. These tasks typically involve preparing and giving quizzes, assignments, projects, and conduct periodic exams. However, due to increasing number of students enrolling in these institutions, teachers remain under burden during whole semesters. In distance education environment, such assessments become additionally more challenging in terms of hefty remuneration for hiring large number of tutors. Besides assessments teachers also perform other essential tasks such as: preparing course content, conducting lectures, conducting meetings with students to resolve their problems related to course, and exams invigilation. Moreover, they also strive to conduct research for their future prospects and for the common good of the society. Having mentioned the range and nature of tasks performed by a teacher, it is highly probable that a teacher's time and effort might be compromised in performing any or all of these activities.

From the students' perspective, they require quality in lectures and learning materials. They require fair grading in assessments. They also need comprehensive, immediate, and continuous feedbacks on their work from their respective teachers to improve their learned knowledge and skills. The non-availability of appropriate time and effort from a teacher in performing these tasks can seriously degrade students' learning motivations and quality of learning. In most of the advanced countries, teachers take the help of paid teaching assistants (TAs) to help them in conducting various tasks. However, in developing countries, there is a lack of skilled people and resources to hire such TAs.

We believe that it is time to come up with new ideas to automate various teaching tasks to support effective teaching and students' learning. One task that can be automated is assignments checking and grading. Such automated assessments are usually called as Computer Aided Assessment (CAA). Although, assignments for all types of courses cannot be checked automatically, but courses that have some strict language of expression can be automated, for example, programming courses in the Computer Science (CS) domain.

Programming is an essential part of CS and in even other academic disciplines. Practice is the only key to learn programming for which teachers provide assignments carrying programming problems to be solved. Usually, instructors manually grade and provide feedbacks on these assignments. This is very time consuming and requires a lot of efforts. In distance education environment, peer assessment are also being utilized to deal with this problem but again dealing with conflict of interest situation between students might not be easy every time. In literature, various tools have been reported to automate this process, but most of these tools have been developed by the host institutions themselves for their own use. There are also two open source tools for CAA for programming assignments, namely BOSS<sup>1</sup> and Web-Cat<sup>2</sup>. However, they are monolithic applications and do not support easy integration with other applications such as learning management systems (LMS) (Amelung et al., 2011), authoring tools, and content management systems. As discovered from their respective web sources, they have been originally developed for Java language. In our experience their adaptation for other languages will require a good amount of customization efforts. We at COMSATS

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<sup>1</sup> <http://www.dcs.warwick.ac.uk/boss/about.php>

<sup>2</sup> <http://wiki.web-cat.org/WCWiki/WhatIsWebCat?action=show&redirect=Web-CAT>

Institute of Information Technology, Lahore are conducting a pioneer effort in Pakistan to develop a CAA system for marking of assignments of introductory programming courses that involve C/C++ languages with the capability of associating appropriate feedbacks for students.

In this paper, we basically identify different components that we believe are necessary in building an effective CAA system in the context of introductory programming courses that involve C/C++ languages (see Section 2 for details). The paper is different from conventional surveys where usually developed tools and techniques are only reported. In this paper we also provide a survey of existing state of the art tools and techniques reported in literature for developing/implementing these components. We also report an important software architecture technique that can make assessment system flexible for change and reusable for other external applications (see Section 3). We highlight some standards that have been evolved over the past few years that can help in standardized searching and sharing of assessment objects to support collaboration between teachers and even different systems (Section 4). Moreover, we also highlight reported techniques that can help in securing such sharing of objects (Section 5). It is hoped that this paper will provide a good starting point for those who are interested in building such automated systems.

## **2. Components for Developing an Effective CAA System for C/C++ Programming Assignment**

In this section we describe about various important components that are necessary for building an effective CAA system for C/C++ programming assignments provided in introductory programming course. All these components can generate valuable feedbacks for students that can be delivered to them along with teacher's comments.

### **A. Program Correctness Evaluation**

It is very important for assessment tool to check whether the student's program performs the required functionality (Ala-Mutka, 2005). This is done by comparing the output of the program with the test cases provided by teacher (Ala-Mutka, 2005). The manual generation of test data is very tedious. Although it is not possible to test all inputs for a given program, but there are approaches that try to minimize inputs by using different input variations to identify maximum errors (Myers, 2004). Two well-known approaches for program evaluation are "Equivalence Class Partitioning" (ECP) and "Boundary Value Analysis" (BVA). In ECP, inputs are partitioned into two disjoint classes, i.e., valid and invalid values (Myers, 2004) whereas in BVA, the upper and lower boundaries of input are used as test data (Jorgensen, 2002), (Myers, 2004). From experience, it has been learned that most of errors occur at the boundaries and for values that exist above and below these boundaries (Myers, 2004). The test data generated for both techniques have been described in table 1.

Table 1: Examples of Test Data Generated with ECP and BVA Techniques

For Input	Technique	Possible Test data
From 1 to 10	ECP	invalid classes → 11, 0, valid class → 5 adapted from (Myers, 2004)
	BVA	0, 1, 2, 10, 9, 11 adapted from (Jorgensen, 2002) and (Myers, 2004)

In practice, both techniques are used together (Jorgensen, 2002). Unfortunately, we could not find any open source tool that can generate such data. For CAA systems one needs to implement these techniques himself. The problem of generating test data becomes complex when more than one input variables are required. The test data for variables can be generated using both BVA and ECP. However, to test a program thoroughly we need all possible combinations of test data values which can be quite large and not feasible for assessment system. However, it has been observed by researchers that most of the errors or bugs in software occur usually due to combination of some variables (up to 6-way combination) (Leung, H., 2014). Therefore, as reported by Leung, test cases can be generated by using the combinations of subsets of all variables. There are various open source tools for addressing test cases combinatorial problem for example, PICT<sup>3</sup>, Jenny<sup>4</sup>, and AllPairs<sup>5</sup>.

## B. Static Analysis of Code

The static analysis of code helps in identifying those errors that cannot be detected by typical compilers and can remain unnoticed even after several executions. However, identification of these errors is necessary as they can create problems at any time in the long run. These errors include, memory leaks, unidentified infinite loops, out of boundary, etc. To enforce good programming practices these problems need to be highlighted for programming students as errors or warnings. Similarly, teachers may use such errors reporting to award appropriate marks to students. There are three open source tools that can help in highlighting these errors in the context of C language. These tools are Splint (Secure Programming-Lint)<sup>6</sup>, Memwatch<sup>7</sup>, and CppCheck<sup>8</sup>. However, it must be noted that CppCheck is the only tool that also supports C++. There are many checks that are supported by these tools. However, it will not be appropriate to report about all of them for students of introductory programming course. The list of checks that might be sufficient is listed in table 2. The table also list tools that support them. One more interesting point that we want to highlight is that some parts of error messages produced by these tools might not be of any interest or understandable for

<sup>3</sup> <http://msdn.microsoft.com/en-us/library/cc150619.aspx>

<sup>4</sup> <http://burtleburtle.net/bob/math/jenny.html>

<sup>5</sup> <http://engineering.meta-comm.com/allpairs.aspx>

<sup>6</sup> <http://www.splint.org/manual/manual.html>

<sup>7</sup> <http://www.linkdata.se/sourcecode/memwatch/>

<sup>8</sup> <http://cppcheck.sourceforge.net/>



students. Therefore, we can simplify or remove such unnecessary information in these messages.

Table 2: List of Useful Checks and their Support in Static Code Analyzers

Check	Tool		
	Splint	Memwatch	CppCheck
Memory leak	yes	yes	yes
Dangling reference	yes	no	yes
Infinite loop	yes	no	no
Boundary check	yes	no	yes
Unreachable code	yes	no	no
Incomplete switch	yes	no	no
Return values that never used	yes	no	no
Variables not used	yes	no	yes
Functions not used	no	no	yes

### C. Grading on the Basis of Semantic Similarity with Model Solution(s)

Similarity checking of students solutions with model solution(s) is a key task in assessment for grading and providing feedback. It can help in grading a program on the basis that whether it meets some design specifications (for example, modularity) (Vujosevic-Janicicet et al., 2012). It can help in evaluating programs that are incomplete or execute infinitely (Tiantian et al., 2007) or unable to compile/execute. Thus this approach can be very valuable in addition to other two modes of assessments, i.e., functionality testing and static analysis of code (Vujosevic-Janicicet et al., 2012) as described in previous sections. In this context, an important work among others has been done in (Vujosevic-Janicicet et al., 2012). The authors used the concept of “Control Flow Graph” (CFG) which represents program’s structural flow. According to authors, the graph consists of nodes where each node represents a sequence of code. The authors described that it does not include control and iteration statements. They argued that a CFG treats control flow statements differently from other blocks of code (to determine nodes topology) this is why it is suitable to determine similarities of any two solutions. They used “neighbor matching” algorithm for identification of similarities. They argued that this algorithm possesses such capabilities that are very valuable in comparing student’s solution with model solution.

Besides graph based approach, in our opinion, the token matching approach described in section 1.E can also be explored for determining semantic similarity of solutions.

### D. Programming Style Checking

The coding style of programmers plays a vital role in software development and its maintenance. Different institutions and projects follow either already available or develop their own homegrown coding standards. Without such standards it becomes hard to understand or change the code by other programmers and even in some cases by the original developers themselves. Style of programming is a skill that must be learned by students right from the beginning to become successful in professional lives. Studies in (Zaidman, 2004) and (Ala-Mutka, 2004) show that students found the teaching of

programming standards very valuable. Although some students did not show interest in such standards, e.g. beginners due to complexity (Ala-Mutka, 2004) but indeed its importance has been acknowledged by teachers and professionals (Zaidman, 2004). According to literature, there is no single standard available for programming styles. One of the primary works related to coding standards was done by Dromey. He provided a framework to associate code level attributes to “high level” software “quality attributes” such as: “reliability”, “efficiency”, “functionality”, “maintainability”, “reusability” (Dromey, 1995). Later, Uimonen performed similar kind of analysis and linked source code features with “software quality attributes” (as cited in Ala-Mutka et al., 2004). The authors in (Oman & Cook, 1990) provided “taxonomy” of programming styles after conducting extensive literature survey and reviewing code evaluators. Their style classification include: (i) “Typographic style”, (ii) “Control structure style”, and (iii) “Information structure style”.

Researchers have also put efforts in developing automated analyzers to check programming style for different languages. For example, STYLE and CAP tool for PASCAL, PASS-C for C, and STYLE++ for programs written in C++ (Ala-Mutka, 2004). However, it must be noted that PASS-C is a commercial product. Moreover, we could not find the downloadable binaries or source code of Style++. There is one open source tool for Java called “CheckStyle”<sup>9</sup>. We also found one such tool for C and C++ languages called “nsiqcppstyle”<sup>10</sup>. However, this tool provides very few checks. There is a need to extend this tool or build an entire new style checker for C and C++ languages. In developing a new style checker, both CheckStyle and nsiqcppstyle can help in creating scripts and regular expressions to validate any given style check. A typical approach of implementing these checks would be to parse the “Abstract Syntax Tree” of any given code. Moreover, the understanding of these tools can also help in developing a framework in which teachers can be facilitated to easily modify any programming style guideline check according to their own needs. For example, CheckStyle as mentioned on its website currently supports flexible architecture in which modifications in any rule is performed by editing its configuration XML file.

## **E. Source Code Plagiarism Detection**

The source code plagiarism detection always remained a focal area in programming assignments. The presence of plagiarism in assignments hinders true learning by students and must be discouraged. According to Parker & Hamblen, a plagiarized source code is “a program which has been produced from another program with a small number of routine transformations” (as cited in Clough, 2000). Several studies reported about the type of changes or transformations that can be adopted by students e.g., see (Liu et al., 2006; Prechelt et al., 2002; Bejarno et al., 2012). In literature, there are basically four broad techniques for automated identification of plagiarism in source code. These approaches include: “metrics based techniques” (Mozgovoy, 2006; Whale, 1990), “token matching” (Cosma & Joy, 2012), “graph based matching” (Liu et al., 2006), and “abstract syntax tree based techniques” (Liu et al., 2006). Currently available tools adopt “token matching” approach due to its simplicity, efficiency, and accuracy.

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<sup>9</sup> <http://checkstyle.sourceforge.net/>

<sup>10</sup> <https://code.google.com/p/nsiqcppstyle/>

According to authors in (Cosma & Joy, 2012), in the token matching approach, the source code is first converted into standard set of tokens. They described that the line of codes which belong to same family of instructions are given the same tokens. For example, control structures if-else, switch statements will be given same token name. The tokens of two sets of source codes are then compared to determine their similarity (Cosma & Joy, 2012) using a similarity function (Prechelt et al., 2002). The Plague, Yap3, Sherlock, and JPlag are the famous tools that adopt this technique (Cosma & Joy, 2012). The authors of YAP3 utilized a novel algorithm for token matching called “Greedy String Tiling Algorithm” (Wise, 1996). The purpose of it is to identify statements reordering and conversion of a function in more than one functions type of cheatings (Cosma & Joy, 2012). The efficiency of the tiling algorithm was further enhanced by utilizing the “Karp-Rabin string matching algorithm” (Wise, 1993). Among the tools that are described earlier, JPlag is accessible as web service. The Sherlock system is claimed to be the part of BOSS assessment system<sup>11</sup> but we could not found its source code in the downloaded source code of BOSS. The source code of Yap3 is available for non-commercial use from its website<sup>12</sup>. However, Yap3 provides tokenizer for only C language. To use Yap3 for C++ language, two open source tokenizers can be explored, i.e., Flex<sup>13</sup> and Quex<sup>14</sup>.

To pursue plagiarism cases, good visualization techniques for displaying results are also necessary. For example, in JPlg the results are presented in terms of histograms where each histogram represents similarity between two source codes pairs (Prechelt et al., 2002). According to authors in (Prechelt et al., 2002), to further explore the results for more confirmation of plagiarism, the user can view two source codes in “side-by-side comparison” windows where matching lines are highlighted using similar colors. They further described that by clicking hyperlinks near matching lines on either window, the view in other window automatically jump to its corresponding code. Similarly, the box plot technique reported by authors in (Cosma & Joy, 2012) can also be valuable for proving plagiarism cases. According to authors, the technique helps in identifying copy cases by differentiating them from the source codes of rest of the students.

## F. Miscellaneous

There are many other important features that can be evaluated in the context of programming assignments for grading and feedback. They may include for instance, lines of code, “memory usage”, efficiency in terms of “CPU time” (Ala-Mutka, 2005). Their implementation does not require much programming efforts.

## 3. Service-Oriented Architecture (SOA) for Flexibility and Reusability of Components

Until recently, most of the software design architectures were monolithic. Monolithic architectures of increasingly complex software design usually impose strong restrictions, for instance, difficult integration with other software tools, less interoperability and reusability of various software components. Service-oriented architecture (SOA) is a

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<sup>11</sup> <http://www.dcs.warwick.ac.uk/boss/history.php>

<sup>12</sup> <http://luggage.bcs.uwa.edu.au/~michaelw/YAP.html>

<sup>13</sup> <http://flex.sourceforge.net/manual/Cxx.html#Cxx>

<sup>14</sup> <http://quex.sourceforge.net/index.html>

promising architecture to solve these problems, providing loose coupling between modules/services, reusability of modules, and easy adaptations in software in response to changes in business workflows. Moreover, it also facilitates in integrating either whole software or its one or more modules with external applications. The authors (Davies & Davis, 2005) describe two assessment systems that use SOA: E-Learning Framework (ELF) (Wilson et al., 2004) and LeAP (Blinco et al., 2004a). ELF is reported to be an ongoing work that also provides support and means to integrate ELF in the existing LMSs “regardless of the technology they are built on”. In contrast, LeAP is reported to be the “first large project of its kind” which adopted SOA. Similarly, JORUM+ “is a repository of educational content” in UK, allowing their reuse by exploiting SOA (JORUM, 2014). In the context of this paper, we find the work presented in (Amelung et al., 2011) to be one of the few works that explains adequately the development of SOA for CAA system for programming assignments. We describe it in some detail in the following paragraph.

In compliance with SOA, the authors in (Amelung et al., 2011) considered various testing solutions as **Backends**, for instance, JUnit for Java and QuickCheck for Haskell programming language. According to authors, these Backends are basically “self-contained web services” provided securely over “standard internet protocol” using “Python’s XML-RPC server API”. The authors used the term **Frontend** for GUIs that call Backends. They support two GUIs: ECAutoAssessmentBox and light weight Java frontend: Stand-Alone Thin Client. According to them, Frontend performs functionalities such as: (1) “storage of assignments”, their solutions and courses (2) configuration of courses and assignments (3) status and statistics of submitted assignments, etc. To make the architecture flexible and to enable loosely coupled integration of Frontends and Backends, the authors used another component named **Spooler**. According to authors, it acts as an intermediary between various Frontends and Backends; providing “uniform access” to Backends. They further described that this Spooler is in fact similar to the printer spooler which: (1) “manages a submission queue” of service requests by Frontends (2) manages the result queue of outputs to be sent back to Frontend generated by the corresponding Backends, etc.

#### **4. Sharing Assessment Questions in Compliance with IMS GLC**

“IMS Global Learning Consortium (IMS GLC)” is “a global, nonprofit, member organization that strives to enable the growth and impact of learning technology in the education and corporate learning sectors worldwide” (IMS-Global, 2014a). As reported on its website, since its inception, the consortium has introduced 20 standards in the field of educational technology. After the efforts of several years, the consortium has introduced IMS Common Cartridge (IMS-CC) to “share and reuse” learning objects (IMS-CC, 2014a) and IMS Digital Repositories Interoperability (IMS-DRI) (IMS-DRI, 2014) standard for querying or searching learning objects repository in a standard way (Queiros & Leal, 2012). The implementations detail of these standards for programming exercises as learning objects for automated evaluation purposes has been demonstrated in (Queiros & Leal, 2012). By following these standards, other applications (other evaluation engines, Learning Management Systems) can reuse repository of programming exercises and other metadata related to them, for example, marking scheme, learning objectives, complexity, source code solutions, test cases, etc. Similarly, they can add their own exercises in shared repository. If required, the assessment system

then can respond them by providing results of evaluation. However, it must be noted that IMS does not provide any specification related to the response results and any particular assessment systems can use its own format of reply as reported in (Queiros & Leal, 2012). IMS also provide “questions & tests interoperability” (IMS-QTI)<sup>15</sup> standard for sharing questions and their results between different systems (IMS-Global, 2014b). However, it is not practically capable for dealing with programming exercises evaluation requirements, such as test cases, marking scheme, etc. (Leal & Queiros, 2009).

## 5. Secure Sharing of Assessment Objects

Teachers within or across institutions share their expertise, experience and resources with each other for the betterment of students. In case of CAA, sharing of programming exercises and their related metadata, such as, model solutions, marking scheme, test cases, etc. can be very beneficial in raising the standards of education in computer programming. The IMS standards described in previous section are the means to achieve this goal. By utilizing the collective intelligence of teachers, such sharing can also help in creating a repository of open educational resources (OER) for teachers. The development of open educational resources and their impact on education and society is being researched very passionately. In our view, teachers can be facilitated to share these resources in two modes, i.e., protected and public mode or they can keep them private. In protected mode teachers can share these assets with a group of colleagues, friends, or any group they like. In public mode all resources can be viewed by any teacher. However, such sharing must be made secure to ensure access rights of users. The IMS standard itself provides authorization mechanism for IMS CC specifications (IMS-CC, 2014b). Another work that can help in this context has been done in (Ahmad & Whitworth, 2011). By extending this work, we provide a generalized policy rule for implementing secure sharing of resources as follows:

Let  $\delta$  consists of two states named as Public (Pb) and Protected (Pr).  $\sigma$  computes the access request decision and has two states Allow (a) and Deny (d).  $\sigma$  also has two functions, to map T to Pb, and to map T to Pr so that it can decide on the result of a request. If some teacher’s policy states that the Public and Protected members can only access such and such course material, then the access control policy  $\Lambda$  may follow the following set of rules:

- 1) If a teacher outside the domain of the owner T’ has a mapping to the teacher T, then T’ will become the member (M) of domain, else it remains non-member (Nm).
- 2) Objects (O) belong to T are assigned a security clearance label (L) to show the sensitivity of the object. These labels are used to share material with other teachers in public and protected role.
- 3) If T’ is a member of domain D(T) and requests some object for which (s)he has the clearance, then the request will be allowed.
- 4) If T’ is a member of domain D(T) and requests some object for which (s)he does not has the clearance then the request will be denied.
- 5) If T’ is not a member of domain D(T) and requests for an object, then in this case the request will be ignored.

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<sup>15</sup> <http://www.imsglobal.org/apip/alliance.html>

$$\Lambda = \begin{cases} T' \rightarrow M/Nm \forall T' \in D(T) \\ O \rightarrow L \\ T' \rightarrow L(D(T)) \\ M \rightarrow a/d_r \forall r \in \sigma \end{cases}$$

The system implementation is done through centralized security kernel –trusted software component which interrupts every system request and decides its outcome. The access control module issues secure tokens to the requestor, so (s)he can access the object. Digitally signed centralized tokens are used to access the requested objects to ensure the integrity of the system.

## Conclusions

In this paper, we describe the necessity for developing CAA systems to raise the standards of education in both conventional and distance education environment. We reported different components and techniques that can help in building an effective CAA system for programming assignments that involve C/C++ languages. We also identified some techniques and concepts that can help in making such system reusable with the capability of sharing its assessment objects in a secured manner. It is hoped that this paper will provide a good starting point for those interested in building such CAA systems

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# Evaluation of online English listening and speaking skills courses

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## Abstract

This research aims to (1) study the assessment and evaluation of, and (2) to propose guidelines to the online English courses with listening and speaking content in the Bachelor of English degree program.

The instruments included (1) exam marks of 5 semesters; (2) a questionnaire for 137 attendants of *the English for Professional Experience Course* and (3) an interview. The sample group consisted of students attending *the English for Professional Experience course*; a group of informants comprising 2 English subject experts, 1 evaluation expert, 5 evaluation technologists, and 2 chairpersons of 5 online courses. Descriptive statistics and content analysis were used.

The results revealed that (1) the current assessment and evaluation of all courses were performed both straightforwardly and comparatively. In the formative evaluation, *the 14422 Effective Presentations in English* course, students submit their presentation skills via video clips. The *14320 English Pronunciation* and *14215 Introduction to English Linguistics* (Modules 3, 13, 15) courses exploit online activities while *10111 English for Communication* and *10171 Interaction* courses make best use of written and tutorial activities. Final examinations are in paper and pencil format. (2) The state-of-the-art assessment and evaluation in the formative activities should be compulsory, and be expanded exclusively in terms of content and productive skills. In due course, the final examination should be developed, with the aid of software technology, to accurately measure students' listening and speaking performance. However, the manpower for evaluation must be commensurate with the number of students.

Keywords: listening and speaking skills, online courses, assessment and evaluation, English testing

## Introduction

The School of Liberal Arts at Sukhothai Thammathirat Open University, has offered BA (English) online and via distance learning since 2010. The degree covers 23 courses (6 credits each) with 19 English courses which include listening, speaking, reading and writing skills, intercultural communication, translation, linguistics, and English pronunciation. 12 courses are offered online while 7 are offered via printed matter with supportive learning media.

The listening and speaking courses (LS courses) include *Effective Presentations Skills*, *English Pronunciation*, and *Introduction to English Linguistics* in which 3 modules are concerned with listening and speaking skills (LS skills)—phonetics, phonology and World Englishes. *Interaction* and *English for Communication* focus on

oral communication. Face-to-face tutorials are offered in various provinces to support the lack of practice for speaking skills.

Formative (20-40% of the final scores) and summative evaluation (final examination) are employed. The formative assignments are based on self-study, the learning process, and quality feedback. For online courses, students can perform their LS skills directly. In the *Effective Presentations* course, students submit a video clip of their own presentations in English. Other speaking assignments are limited to written activities; for listening skills, they study on their own via various media.

The final examinations are in objective (multiple-choice) and subjective formats.

Written test formats reflect receptive not productive skills wherein the test takers would have to demonstrate their speaking skills.

### **Objectives**

This research aims to (1) study the assessment and evaluation of and (2) to propose guidelines to the online English LS courses in the Bachelor of English degree program.

### **Operational definitions**

Online LS courses in this research cover 3 direct LS skills (*Effective Presentations*, *English Pronunciation*, and *Introduction to English Linguistics*) and 2 related courses (*English for Communication* and *Interaction*). This study does not cover other English courses that have LS skills as parts of their course descriptions.

### **Literature review**

#### **Listening and speaking skills evaluation is subtle and multidimensional in itself; evaluation via distance and online learning is a challenge.**

“The ability to speak in a foreign language is at the very heart of what it means to be able to use a foreign language. Also speaking is the most difficult language skill to assess reliably.” (Bachman and Alderson in Louma, 2004: ix). Speaking as meaningful interaction to other people, Louma thus describes that spoken language includes the sound of speech, spoken grammar (spoken idea units, grammar in planned and unplanned speech), words (specific and generic words, fixed phrases, fillers and hesitation markers) (Louma, 2004). All of these must be taken into account when measuring LS performance. And, measuring through distance and online channels is a challenge which must involve modern technology.

Language skills, unlike declarative knowledge, are procedural. The concern of assessment and evaluation thus emphasizes on learner use, not usage, of language and on developing learner awareness and communication skills.

#### **The assessment and evaluation should meet standard criteria for listening and speaking skills**

The CEFR (Center for European Framework of Reference for Languages) is used in standard guidelines all over Europe for curriculum design, testing, and textbook writing. The detail of each skill is overwhelming, specifying knowledge and skills that learners need to be able to use language efficiently. This framework also includes cultural context, and performance which language users need to develop and measure during the process of learning. For spoken fluency CEFR has the following details. For

bachelor degree graduate, language users should be able to use the language at the level of B2.

## **SPOKEN FLUENCY**

### **C2**

*Can express him/herself at length with a natural, effortless, unhesitating flow. Pauses only to reflect on precisely the right words to express his/her thoughts or to find an appropriate example or explanation.*

### **C1**

*Can express him/herself fluently and spontaneously, almost effortlessly. Only a conceptually difficult subject can hinder a natural, smooth flow of language.*

*Can communicate spontaneously, often showing remarkable fluency and ease of expression in even longer complex stretches of speech.*

**B2** *Can produce stretches of language with a fairly even tempo; although he/she can be hesitant as he/she searches for patterns and expressions, there are few noticeably long pauses.*

*Can interact with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible without imposing strain on either party.*

*Can express him/herself with relative ease. Despite some problems with formulation resulting in pauses and ‘cul-de-sacs’, he/she is able to keep going effectively without help.*

### **B1**

*Can keep going comprehensibly, even though pausing for grammatical and lexical planning and repair is very evident, especially in longer stretches of free production.*

*Can make him/herself understood in short contributions, even though pauses, false starts and reformulation are very evident.*

### **A2**

*Can construct phrases on familiar topics with sufficient ease to handle short exchanges, despite very noticeable hesitation and false starts.*

### **A1**

*Can manage very short, isolated, mainly pre-packaged utterances, with much pausing to search for expressions, to articulate less familiar words, and to repair communication.*

(Source: CEFR (Center for European Framework of References for Languages) page 24)

**The present evaluation system for online LS skills courses focuses on formative assignments as the learning process and getting feedback for improvement while summative assignments value the macro pictures of learner performance.**

Testing should rely on reliability, validity, flexibility or practicality. It should measure what it is supposed to measure (Weir 1990, 1993). In a distance learning system, measuring speaking ability is a challenge which needs to be supported by

technology. Apart from education quality, the administration and expense must be taken into consideration, especially for a mega-university with huge enrolment. In a distance and online learning evaluation system, all kinds of skills can be evaluated: in reading skills, correct answers to reading comprehension can be evaluated; in writing skills, students' written work; in listening, listening comprehension via websites can be tested; and in speaking, students can submit their own video clip.

At present, modern technology enables online learning through electronic media. Listening can be taught quite effectively as many websites illustrate. Students can exploit these valuable resources. Students can also submit their speaking skills via sound files or video clips and get feedback from teachers. This depends on administration systems and whether the institution has adequate budget.

Existing assessment and evaluation are based on formative and summative assignments. Table 1 shows educational media, online activities, formative and summative evaluation and passing rates.

**Table 1: Assessment and evaluation for online LS courses**

English courses	Educational media	Online activities	Formative	Summative	Passing rate in percentage (2011-2014)
10111 English for Communication	Textbooks	Supplement	Written 20 %	Multiple-choice test Paper and pencil	23.97--59.40 N (1125-4402)
10171 Interaction		None			63.30--88.79 N(89-489)
14215 Introduction to English Linguistics	Printed manual and online tasks	Major	Online assignment 40%		12.07--47.42 N (149-592)
14320 English Pronunciation					19.44-52.65 N (58-297)
14422 Effective Presentations in English	Multi-media CD and online tasks	Major	Online assignment Video clip submission 40%	Multiple-choice test and subjective test Paper and pencil	56.10-79.65 N (41-231)

### **The present assessment and evaluation reflect course descriptions and objectives of the courses**

In evaluating student performance we need to see whether it meets the course objectives or not. The objectives of courses with direct listening and speaking focus on the ability to communicate in various situations. *Introduction to English Linguistics* aims the ability to understand theories and concepts of fundamental English linguistics for the benefit of communication in English. *English Pronunciation* includes the ability to listen to, pronounce, transcribe with English phonetics, and pronounce English correctly. *Effective Presentations in English* focuses on skills and strategy use.



## 14422 Effective Presentations in English

### I. Choose the best answer.

1. In the event that we cannot use a mean value, we may use a median and the mode.  
Which of the following can replace the underlined phrase above?  
a. And b. So c. If d. Then
2. Which of the following has the correct stress?  
a. néwspaper b. newspáper c. newspapér d. no correct answer
3. Which of the following has the correct stress?  
a. Mary wént to Chiang Máí on an airplane.  
b. Mary wént to Chíang Mai on an airplane.  
c. Márywént to Chíang Mai on an áirplane.  
d. No correct answer

## Formative assignments reflect the learning process and getting feedback

### 14215 Introduction to English Linguistics

Module 14 “World Englishes” (as reinforced in the *English for Professional Experience* course)

Listening skills in practice

#### 6E: Accents

Listen to different people speaking English and identify who they are judging from their accents. Write the letter of your choice in the space provided.

- a. Jim is a language teacher from Canada.
- b. Kiana is an artist from France.
- c. Christina is a tourist from Russia.
- d. Brendan is a doctor from Australia.
- e. Victoria is an engineer from Macclesfield, NW of UK.
- f. Marcus is an investor from Sweden.
- g. Paul is a marketing manager from Scotland.
- h. George is a computer specialist from Sunderland, NE of UK.

#### *Recording Script*

Everybody speaks differently. English accents vary according to geography — national and regional types, for example, British, American, Indian, Scottish, English Midlands, North Walian English, Ulster, and so on. Accents of non-native speakers of English also vary.

**Source:** Tench, Paul. (2011). *Transcribing the Sound of English*. Cambridge: Cambridge University Press, p. 73.

- |             |             |             |             |
|-------------|-------------|-------------|-------------|
| 1. <u>g</u> | 2. <u>b</u> | 3. <u>a</u> | 4. <u>e</u> |
| 5. <u>h</u> | 6. <u>c</u> | 7. <u>f</u> | 8. <u>d</u> |

## 14320 English Pronunciation Online Practice Module 7 : Word stress and sentence stress

**English Pronunciation Module 7 Online Practice (November 2013)**

**Task 4 (8 points)**

Part One: In each sentence, identify the stress pattern for each of the underlined words or compounds. Write the letter of the correct stress pattern in the blank after each sentence. Listening to the recording will help you do this. (4 points)

a. Co      b. oQ      c. OO      d. Ooo      e. oOo      f. ooO  
 g. Oooo    h. oOoo    i. ooOo    j. oooO

Example: The computer is next to the bookcase. (e, a)

1. A thunderstorm is also known as an electrical storm. \_\_\_\_\_
2. The army commander left the city undefended. \_\_\_\_\_
3. She picked up some sausages at the supermarket. \_\_\_\_\_
4. The unemployed man never gave up looking for a job. \_\_\_\_\_

## 14422 Effective Presentations in English

### ONLINE ACTIVITY I (20 marks)

**Assignment I: Individual work (20 marks) DUE DATE: 11 AUGUST 2013 24.00 hr.**

**You are able to submit from 22 July 2013, 8.30 am.**

You will have to study the following modules:

STUDY Modules 1-5: Principles of Effective Presentations/ Content Preparation/ Connectivity/ Written and Spoken Language/ Areas of Difficulty

#### A: Process

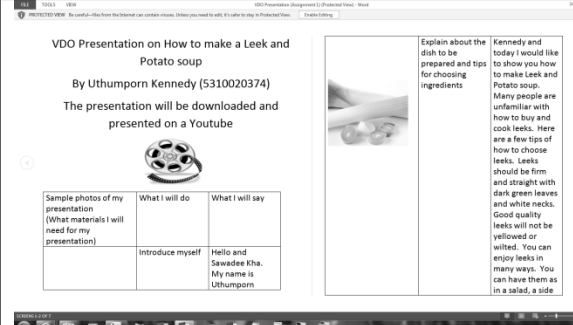
- I. Choose a topic of your oral presentation on a process of something  
Examples of topic: How to make espresso, How to cook Thai food, How to save water, How to save money, How to save the environment, etc.
- II. Write up a content outline for a five-minute presentation.
- III. Prepare a PowerPoint file of no more than 10 pages.  
Choose photos or pictures and draft the description of your visual aids.
- IV. Draft your oral presentation scripts in English.

#### B: Draft the following outline for your presentation.

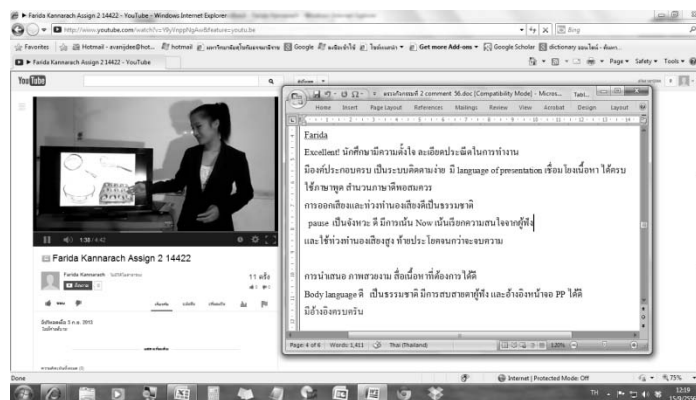
The first one is done for you as an example.

5 marks		15 marks
PowerPoint Decide how many you wish to give	Details of PowerPoint slides or other technology	Oral descriptions in English
	Photo of big cups of coffee; bright color	Today, I will show you how to make a delicious cup of espresso coffee.

<b>C: Submit your work for the presentation in B.</b>		
<b>Criteria for marking</b>		
<b>Visual aids 5 marks:</b>		
correspond to the content and purpose of presentation	<b>3</b>	
attract the audience	<b>1</b>	
neatness	<b>1</b>	
<b>Oral presentation description 15 marks:</b>		
helpful outline and contains the language of presentation (introduction/ topic/ scope of the topic/ time needed/ transition/ summary/ conclusion)	<b>7</b>	
correct grammar and expressions	<b>5</b>	
spelling	<b>3</b>	
<b>Please note that the information in your Assignment 1 will be used for Assignment 2.</b>		

<h2 style="margin: 0;">Assignment 1 Uthoornporn Kennedy</h2> 	<h2 style="margin: 0;">Assignment 2 Uthoornporn Kennedy Video Clip</h2> 
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### Feedback for students



Feedback for students (Farida Kannarach):

Farida Excellent! นึกถึงงานที่ใจ และสื่อประสมในการนำเสนอ มีองค์ประกอบครบ เป็นระบบดีตามหัวข้อ มี language of presentation ที่สื่อ โลกนี้เขาได้สอนให้เขาพูด ส่วนมากที่พอจบการ การออกสื่อและทำงานจริงก็เป็นธรรมชาติ ประเด็นที่เฉพาะ มี มีที่งานนี้ Now เป็นอีกความสนใจของคุณ และใช้ที่งานที่สื่อสูงๆ ขึ้น ประเด็นที่จบความ

การนำเสนอ การชมเชยงาน ที่นี้เอง ที่สื่อภาษาได้ Body language ดี เป็นธรรมชาติ มีภาษาพูดที่ฟัง และเข้าใจง่าย PP ได้ดี มีส่วนครบถ้วน



## Methodology

Instruments included (1) the final and makeup exam marks of 5 semesters; (2) a questionnaire for 137 attendants of *the English for Professional Experience Course* and (3) an interview. The sample group consisted of students attending *the English for Professional Experience course* and a group of informants comprising 2 English subject experts, 1 evaluation expert, 5 evaluation technologists, and 2 chairpersons of 5 online courses. Descriptive statistics and content analysis were used.

## Results and discussions

### 1. Current methods of assessment and evaluation of English online courses

(1) Demographic information of the sample group yielded that students were under 31 years of age. 46% had bachelor degrees; 36.5% below bachelor degrees and 32.8% had graduate studies. This revealed students to be accustomed to a learning environment and mature enough to learn by themselves. 60.1% were able to study on their own. 22.6% evaluated themselves as good in English, and 71.5% as of fair ability.

#### (2) Opinions of experts on the evaluation methods

The experts valued the assignments in the texts and in formative assignments to be in accord with the course description and the course objectives. The limitation was in the huge number of students and the inadequate number of teachers. The final summative evaluation thus was conducted via multiple-choice tests. Formative evaluation should be developed to further cater for listening and speaking aspects. This could be done via adding marks or making them compulsory. Online activities can compensate for the final tests with limitations in speaking ability.

#### (3) Student opinions

##### 1. *English for Communication*

Students joined the formative activities and suggested that speaking can be evaluated when students attend the Professional Experience Course. Evaluation has limited measure of listening and speaking ability. It will only measure comparatively or student usage of language not student use.

2. *Interaction* is a core course and very important in the structure of the curriculum. The course includes many language functions and CDs for listening and speaking practice were provided. The passing rate is high; students submit a lot of formative assignments. Again, evaluation is only comparative.

3. *Introduction to English Linguistics* is a difficult course. More examples in graphic pictures or live teaching should be provided. The assignments should have more listening and speaking practice to support phonetic studies. Final exams should be adjusted as there are too many items and the pass rate is low.

#### 4. *English Pronunciation*

The course provides lots of listening activities and speaking practice with feedback. Pass rates at 19.44% to 52.65%. Interaction should be increased and electronic instruments added for student activities. The test should include authentic listening and speaking.

5. *Effective Presentations in English* is offered online. Students are provided with a CD to study. Formative assignments are twofold: Students draft what they want to do in the presentation; teachers give feedback. Then students submit a video clip of their presentation. Final examination is multiple-choice for grammar and language of presentation and a written draft of a presentation. Passing rates are high at 56.10% to 79.65%.

## 2. Guidelines for assessment and evaluation of online English courses

Since formative evaluation is designed to help students learn and get quality feedback, they can practice and perform their LS skills and get feedback from teachers. The following are proposed:

**2.1 Direct LS online courses.** Online formative assignments must be compulsory for Students to learn and receive quality feedback for their practice and performance of their LS skills. More teachers must be provided to match the number of students. The quality of online assignments should be high and more intense. (*14320 English Pronunciation*). For *14422 Effective Presentations in English*, formative evaluation marks should increase from 40 to 60 because the assignment is complicated, and students perform their listening and speaking ability directly. The limitation for summative evaluation that presently can only be offered in paper and pencil format must be improved.

**2.2 Indirect LS online courses.** Online English courses with modules related to LS such as *14215 Introduction to English Linguistics* should increase the activities with student interaction and direct teacher feedback.

**2.3 LS courses with printed materials.** *10111 English for Communication* is a general course for students studying any degree. It has huge numbers (up to 5000 students in one semester). Supplementary activities such as face-to-face teaching, webcasting, and special training courses are offered. Formative activities should be compulsory with more LS aspects. Final exams should adopt LS format with special projects, or walk-in/computer-based tests.

*10171 Interaction* is in a core-course group, offered via printed matter with LS skills CDs. The content concerns all LS skills. This course should be adapted to be more interactive. The formative assignment should have more LS aspects and the final exam more LS activities.

## 2.4 Passing rates are acceptable and can justify the evaluation at present.

Formative evaluation plays a vital role, reflecting course descriptions and objectives. Summative evaluation should be adapted to be more LS specific.

In sum, at present assessment and evaluation match course objectives on two levels: formative evaluation offers students practice, interaction, and feedback from peers and teachers. This should be enhanced. Summative evaluation should be developed using technology to increase capacities of testing LS skills. Manpower must be commensurate with required tasks to fulfill the quality of online English learning.

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# **A study on the observation and practical teaching session in the Certificate in Pre-school Education Programme**

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Abstract –

Since 1980 Sri Lanka has been using Distance Education methods to enhance the professional development of its students through many programmes. The Certificate in Pre-school Education Programme (CPE) offers a professional programme for students who are interested in early childhood education. This study attempted to identify strengths and weaknesses of recently introduced practical training session on Observation and Practical Teaching in the Certificate in Pre-school Education Programme, offered by the Department of Early Childhood and Primary Education in the Open University of Sri Lanka (OUSL). The total population of this study was the students who have registered in the CPE Programme in the academic year 2011/2012. The study employed survey research design. The sample comprised of 189 student teachers. A mail questionnaire and interview schedule was employed to collect data. 20% of the sample (189) from Sinhala, English and Tamil medium using stratified random sampling was selected from the total population (945 respondents) and interviews were conducted with 20% of the respondents (37 students) from the sample. The study identified several strengths. Majority of students in the sample have been able to develop skills such as understanding a preschool child's behaviours, interact with them and skills of observation by Five Day Observation Session. Five day teaching training session has supported to develop skills related to teaching and learning such as planning lessons, conducting activities, preparing teaching aids and interaction with children. However, less trained Master Teachers especially in the Tamil medium, lack of space in the classroom, difficulties students in traveling to the preschools selected by the Master Teacher, high classroom density, obtaining leave for five days were identified as weaknesses. Finally the study suggested mechanisms such as conducting a training programme for Master Teachers, making the day-school session mandatory and activity based, improving the coordination process to more methodical approach to minimize the identified weaknesses. Moreover, the study recommended conducting an observational study on the five days teaching training in all mediums to enhance the quality of this session.

Key Words – Preschool Education, Teacher Training, professional development, Open & Distance learning method.

## **INTRODUCTION**

The Certificate in Pre-School Education Programme (CPE) is offered by the Department of Early Childhood and Primary Education in the Faculty of Education of the OUSL, since 1980. There is a high demand for this programme. It aims at producing a fully skilled Pre-School teacher through distance mode by enriching the student teachers in both theoretical and practical knowledge and skills. Annually around 1,500 students follow this programme. It is available in all three medium Sinhala, Tamil and

English across fifteen study centers including five regional centers of the OUSL in Sri Lanka.

Teaching Practice, Teaching Aids and Project are three practical courses among the eleven courses. The courses on Teaching practice and Teaching aids have two stages, stage I and II. In the stage I, the Teaching Practice and Teaching Aids practical components are linked with Observation and Practical Teaching Session which is the continuous assessment. In order to obtain eligibility for the Teaching Practice and Teaching Aids final examination (stage II) the students should attend this session and involve in all activities.

Initially there have been two written assignments for Teaching Practice and Teaching Aids with including a five days practical training and observation under a supervision of a Master Teacher. Later in 2004, No. of days have been reduced from 5 days to 3 days due to difficulties in finding resource persons, pre-schools for a large number of students.

However, there had been some informal criticisms that three day session is not sufficient to develop skills in teaching and both students and Master Teachers had faced practical difficulties.

Hence, in 2010/ 2011 some amendments were introduced to the Observation and Practical Teaching Session (stage I). Students were informed to visit a preschool for 5days and observe the teaching learning process using a given observation schedule in order to develop their observation skills and gather knowledge and experiences for their professional development. In addition, students were given five day training in a selected preschool by a Master Teacher appointed by the University.

There have been similar studies done by Fernando, T. S (1992), Oliver, (1997), on the Post Graduate Diploma in Education Programme (PGDE) and Lekamge, G. D (2010) on the Teaching Practice component of PGDE offered by the Faculty of Education, OUSL in Sri Lanka, as well as, Stengal, (1002), Raussaria and Lele (2002), and Sharma, (2002) highlighting the importance of obtaining students feedback.

Therefore, the study planned to identify strengths and weaknesses of this new session and provide suggestions to enhance the quality of the Observation and Practical Teaching Session of CPE Programme.

## LITRETURE REVIEW

### *Significance of Practical Training of Teaching*

The quality of teaching depends on the quality teachers in the system, thus the teacher education has a positive impact on teachers' perception of their own teaching competencies (Lekamge, 2010). Avalos (1980), stated that trained teachers have better professional training, attitudes and relationships and are less authoritarian and make better lesson preparations than untrained teachers. Through teacher education programme, they need to acquire and develop competencies they need in carrying out

their professional activities efficiently and effectively (Fernando, 1992) and acquire attitudes and qualities he/ she requires to perform his/her activities, especially teaching well (Hillard, 1971).

These areas have been identified in studies by many, like Wijethunga (1980); Dove (1986); Wijeratna (1989), Fernando (1992). Similarly, it was found that teachers also perceive competencies in knowledge, skills and qualities, ability to plan and conduct good lessons, make and use effective teaching aids, use different methods and strategies in teaching, appropriate assessments, cater special needs children, manage students effectively, friendly relationship with other teachers as important and necessary skills that they should develop in a teacher training programme (Fernando, 1992, Lekamge, 2010).

In a teacher education programme most favorably viewed (Peretz, 1998) and most beneficial (Appleberry, 1976, Haring and Nelson, 1980 and Eltis, 1991) component is the Practicum. Trainee teachers view the school experience they gain through a practicum as extremely important, practical and satisfying component as they can gain a lot from it and it is the most realistic course of it (Tisher, 1990), in addition, it provides them with a significant occasion for acquiring new knowledge, skills, and dispositions (Zeichner, 1986).

#### *Teacher Training in Distance Mode*

Distance education is becoming a popular mode of learning in teacher education for both developing and developed countries (Neilson 1991, Coldevin and Naidu 1989, Perraton 1992). This has been recognized as a solution for many problems in the teacher education training programmes in developing countries (Lekamge, 2010). When the graduate teacher training is concerned the traditional universities alone have failed to meet the demand, in-service training through distance mode has been mounted to increase the output of qualified teachers.

This approach has an added advantage of permitting teachers to enter the profession and obtain professional qualification while employed. This is one area where distance education has found immediate acceptance. (Kinyanjui 1974 and Avalos, 1991). When compared with the conventional mode of teacher training programme distance mode has been identified as an equally effective or slightly more effective than conventional modes (Oliver, 1997).

One of the ways of meeting the demand for the massive training of teachers in order to fulfill the requirements of universal primary education both quantitatively and qualitatively within the institutional and financial constraints has been the use of distance education schemes. (Avalos, 1991). Oliver (1997) stated that, many of the third world countries both in Africa and Asia have found distance education as an effective approach to teacher education. Further he mentions by giving examples that, African countries like Tanzania, Kenya, Nigeria, Botswana, Zimbabwe and Asian countries like Pakistan, Sri Lanka, Bangladesh, Thailand Malaysia have all adopted distance methods to train untrained teacher.

## OBJECTIVES OF THE STUDY,

- I. Identify strengths of Observation and Practical Teaching Session newly introduced by the Dept. of Early Childhood and Primary Education.
- II. Identify the weaknesses and limitations of newly introduced Observation and Practical Teaching Session by the Dept. of Early Childhood and Primary Education.
- III. Forward suggestions to enhance the quality of Observation and Practical Teaching Session.

## RESEARCH METHODOLOGY

In order to achieve the objectives the survey method of research was used.

### *The Population and the Sample*

During the 2011/2012 academic year the programme was conducted in five regional centers and five study centers in English, Sinhala and Tamil medium of instructions. The population of this study was 945 students from three medium of instructions; English, Sinhala and Tamil, who had registered in the Certificate in Preschool Education Programme from in 2011/2012 academic year.

20% (n=189) from the population was selected using a stratified sampling method for the sample from nearly 200 respondents to the mail questionnaire

Table-01: Sample of the Study

<b>Medium</b>	<b>N</b>	<b>n</b>	<b>%</b>
English (E)	281	107	57
Sinhala (S)	535	56	30
Tamil (T)	129	26	13
Total	945	<b>189</b>	100

N= Population, n= sample

### *Data Collection Instruments*

A mail questionnaire and an interview schedule were used in all three media to the sample students just after the completion of Observation and Practical Teaching Sessions.

The questionnaire was comprised of both structured and open ended questions dividing into three sections. Part one covered the background information on the students Part two covered the information on the five day observation and Part three covered the five day practical teaching. Interviews were conducted with 20 % (37 students) from the sample; 20 Sinhala medium; 10 English medium and 7 Tamil medium.

### *Data Analysis*

Quantitative data were analyzed using simple statistical techniques such as percentages. Qualitative methods were used for the analysis of the data.

### FINDINGS

Findings revealed that the majority of the students were between the age group of 20 – 30 with G.C.E Advanced Level qualifications. However, 70% of the sample regardless of the medium were not working as preschool teachers and were expecting to become a preschool teacher.

#### *Strengths and Weaknesses of the Five Days Observation Session,*

93.4% of Sinhala medium students, 92.8% of English medium students and 76.9% of Tamil medium students have been able to find a preschool for the observation and almost all the preschools have supported them for the activity.

Moreover, 84.1% from Sinhala, 80.3% from English and 38.4% from Tamil medium were able to develop their observation skills very much. 15.3% from Tamil medium were not able to develop observation skills at all. It was found from both questionnaire and interview that the observation in a preschool classroom has given them a lot of benefits such as identifying the classroom environment, teaching strategies, how children learn and react, how to interact with children, how to organize the classroom.

However, it was revealed from the questionnaire and the interview, especially with the Tamil medium students that some of them have faced difficulties when obtaining permission to observe a preschool. Similarly, this issue was mentioned by some of the student samples from Sinhala and English medium.

#### *Strengths of the Five Day Teaching Practice*

The results of the study also revealed that the majority of all three media had a positive response about the five day training programme. It was revealed in the interview that they liked to have five days rather 3 days since they can gain a lot of experience and knowledge except few had difficulties in getting leave for five days continuously.



Table 02: Support Given by the Master Teacher

	<b>Sinhala medium (S)</b>			<b>English medium(E)</b>			<b>Tamil medium(T)</b>		
	Very much	To a certain extent	Not at all	Very much	To a certain extent	Not at all	Very much	To a certain extent	Not at all
<b>Lecturer was supportive</b>	88.7%	11.2%	-	71.4%	28.5%	-	30.7%	53.8%	15.3%
<b>Well briefed</b>	84.1%	15.8%	-	75%	25%	-	38.4%	53.8%	7.6%
<b>Conducted effectively</b>	91.5%	8.4%	-	85.7%	14.2%	-	57%	19.2%	23%

It was significantly noteworthy to mention that the data given in the above table 03 shows that the majority of both (S) and (E) students had a positive feedback of the Master Teacher. Majority from both Sinhala and English medium revealed that Master Teacher was supportive, well briefed them and effectively conducted the session while the majority of (T) students have agreed that the support was given only up to a certain extent.

However, 15.3%, 7.6% and 23% of the sample students from Tamil medium have responded that the Master teacher did not support, well briefed, and conducted the session well respectively. It was revealed in the interview that few Master Teachers in Tamil medium had not a clear understanding about the new session.

Table 04: Skills Developed by the Students

	<b>Sinhala medium (S)</b>			<b>English medium(E)</b>			<b>Tamil medium(T)</b>		
	Very much	To a certain extent	Not at all	Very much	To a certain extent	Not at all	Very much	To a certain extent	Not at all
<b>Planning lessons</b>	93.4%	6.5%	-	92.8%	8.9%	-	57.6%	42.3%	-
<b>Conducting activities</b>	74.7%	25.2%	-	71.4%	28.5%	-	46.1%	46.1%	23.7%
<b>Selecting and preparing teaching aids</b>	84.1%	15.8%	-	82.8%	7.1%	10%	69.2%	19.2%	11.5%
<b>Using teaching aids</b>	85.9%	14.1%	-	85.7%	14.2%	-	57.6%	30.7%	11.5%
<b>Contacts with children</b>	79.4%	20.5%	-	71.4%	28.5%	-	38.4%	46.1%	15.3%
<b>Skills in observation</b>	74.7%	25.2%	-	67.8%	32.1%	-	53.8%	38.4%	7.6%

The above table 04 indicates the skills developed by the students during the five day session. According to the studies done by Fernandoo (1992), Lekamge (2010) competencies in knowledge, skills and qualities, ability to plan and conduct good lessons, make and use effective teaching aids, use different methods and strategies in teaching, appropriate assessments, cater special needs children, manage students

effectively, friendly relations with other teachers are the important and necessary skills that teachers should develop in a teacher training programme.

Similarly, in this study majority of the students have been successfully able to improve the skills such as planning lessons, conducting activities, preparing teaching aids, interaction with children, observing skills were developed through this newly introduced session while the majority of Tamil medium students have been able to develop the skills up to a certain extent.

However, very few Tamil medium students reported that they were unable to develop those skills besides planning lessons due to the shortcomings of few Master Teachers.

The study identified, the introduction of five days observation has helped students to understand a preschool child's behaviours, how to interact with them and to develop observation skills. Five day teaching training session has supported to develop skills related to teaching and learning such as planning lessons, conducting activities, preparing teaching aids, interaction with children. Moreover, the Master Teachers have supported well to develop those skills.

#### *Weaknesses of the Five Day Observation and Teaching Sessions*

Based on the data collected through the questionnaire and interview weaknesses were identified in this session are given below.

- Some of the Tamil medium students have not been able to develop the observation skills in the observation session and develop skills in teaching successfully due to lack of support given by less trained Master Teachers.
- Considerable part of students has not developed skills in observation.
- Difficulties in traveling to the preschools selected by the Master Teacher since some of the students come from a long distance to the preschool.
- Most of the students have responded that lack of experience as a reason for facing some difficulties in practical training session. They enrolled in this programme with the purpose of becoming a preschool teacher. Therefore, they don't have prior experiences in teaching in preschools.
- Lack of space in the classrooms. It was revealed in the interview that some of the preschools selected by the Master Teacher were not conducive for teaching due to very limited space.
- High classroom density- The considerable number of students (35% overall) had responded that due to the large number of students with limited space they faced difficulties in handling the classroom.
- Difficulties in participating five days continuously due to problems in obtaining leave from work places.

It was seen that the majority of Tamil medium students faced difficulties when compared to the other two mediums. This might be due to the lack of training gained by them. Further it is indicated that some Master Teachers have failed to select an appropriate preschool for this purpose.

According to the results revealed, the study proposed to have the following suggestions in order to minimize the weaknesses identified.

- In order to provide a clear awareness on the new observation and practical training session, conduct a training programme for Master Teachers especially Tamil medium Master Teachers annually regarding the evaluation and observation criteria and supervision of the teaching practices and making the participation in this workshop compulsory since all Master Teachers do not attend.
- Make the day-school session mandatory and activity based to provide a good understanding and awareness on teaching and learning in the preschool classroom.
- To make the coordination process more methodical in order to minimize the problems emerge in organizing the session.
- Developing an observation and evaluation criteria for practical teaching.
- Making the five day training process flexible so that it will help working students to engage in the training without dropping out.

## CONCLUSION

Overall, it can be concluded that, the recently introduced session of Observation and Practical training has been successful for majority of student teachers as they had responded positively towards this practical training session. As highlighted by Appleberry, (1976), Haring and Nelson, (1980), Wijethunga (1980), Dove (1986); Wijeratna (1989), Eltis, (1991) Fernando (1992), and Lekamge (2010) on the benefits and importance of having a practical training, the present study also can be supported to the idea that the students develop knowledge and skills and obtain a lot benefits by participating in a training session in a teacher education programme.

Thus, majority of the respondents have been able to improve skills in planning activities for children, preparing teaching aids, conducting activities, identify children differences in behaviours, identify children's different skills, classroom management, maintain attention in the classroom, skills in observation, teacher personality. Other than few respondents, none of the respondents had mentioned about difficulties in attending this practical training. Further, it was revealed that the providing necessary instructions and training of Master Teachers is important for lack of training can arouse problems. Thus

suggestions were made to enhance the awareness, conducting workshops for Master Teachers. Moreover, for further study in the future, the study recommends conducting observation evaluation on the five day training in all three mediums in all centres in order to improve the quality of this Observation and Practical Training session.

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# **The possible factors that influence students' English writing in a distance education context**

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## **ABSTRACT**

Studying English language in distance education is a unique for Indonesian people. Universitas Terbuka (UT) as a distance education institution in Indonesia offers some undergraduate programs. One of the programs is the program of English Language and Literature in Translation. This paper is the dissemination of the part of the writer's dissertation entitles "Analysing Students' Grammar Mistakes in Applying the Simple Past Tense in A Dstance Education Context". The paper tried to investigate the possible factors that influence students' English writing skills on their examination of Writing II. The data was taken from students' examination papers as the primary data and the interviews as a secondary data. The primary data taken was the data about applying the *simple past tense*. The writer divided two interviewed groups, the low mark and the high mark groups to find out the possible factors faced by students especially in applying the *simple past tense* and in learning grammar in a distance education context. The data was then analysed quantitatively and qualitatively. From 41 papers analysed, it revealed that students made mistakes in incorrect verb (31.6%), double verbs (4.5%), present verb (1.6%), past participle verb (0.5%), infinitive verb (0.4%), no verb (3.6%), no subject (0.6%), and incorrect adverbs of time (0.1%) in their writing. From the interviews, it revealed that the main possible factors in making mistakes were 'no group discussion' and 'not joining the course's online tutorials'. Thus, from this study, it is recomended that UT as a distance education must motivate and encourage its students either to join a group discussion or join the provided course's online tutorials.

Key words: distance education, group discussion, online tutorials

### **1. Introduction**

Most English teachers believe that teaching grammar is important because it effects students on their writing. However, most English as a Foreign Language (EFL) learners find some difficulties in learning grammar. Richards and Renandya (2002) stated that the difficulties on grammar are not only in generating and organizing ideas, but also in translating them into a readable text. They also stated that the writing skill is very complex for it involves planning and organizing. Therefore, the writing skill need to be given more attention in second language acquisition (SLA).

Many researches in EFL have been conducted in the past few decades. However, the research in a distance education concerning student writing is still limited. Student writing in distance education is also considered in determining student failure or success on their study. According to Hughes (1989) that the most appropriate way to examine a student writing skills was by conducting a writing assessment. The writing assessment enables teachers whether a student is able to apply his or her thought using the appropriate grammar and vocabulary.

In a distance education context, teaching grammar is different from those in a face-to-face tutorials or traditional classrooms. Students in distance education mostly learn grammar explicitly. They learn grammar from the instructional materials given without the presence of tutors. Therefore, the design of the instructional materials in distance education are different from other text books. The materials given have to be easy to understand and provide answer keys. These materials can be also considered as their “tutors”. When students learn or have discussions with their peers, they learn grammar implicitly.

In Indonesia, distance education is a particular necessity due to its flexibility and capability of facilitating learners who are unable to attend classroom activities, whilst still providing quality education for a large number of students (Zuhairi et al., 2008). Therefore, the writer is challenged to reveal some possible factors faced by students especially in applying the *simple past tense* and in learning grammar in a distance education context.<sup>1</sup> This study is also necessary and significant especially for the Department of English Language and Literature to find out students’ problems in writing and help them find the solution. It also hopefully can make recommendations for revisions to writing modules, especially the module of *Writing II*.

## 2. Literature Review

### 2.1. Writing Definition

Byrne (1998: 1) defines writing as “to produce sentences which are arranged in a particular sequence linked together.” Dealing with the purpose of writing, Hedge (2000: 86) stated that writing is “to encourage them (students) to reflect on their needs and problems in writing and the nature of the course they are about to follow.” It can be concluded from what Hedge (2000) stated that learners have to engage themselves in thinking and improving their writing skills and raising their awareness of why they are doing and what they are expecting for the course.

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<sup>1</sup> This paper is the dissemination of the part of the writer’s dissertation entitle “Analysing Students’ Grammar Mistakes In Applying *The Simple Past Tense* In A Dstance Education Context”. This paper focuses on the possible factors that influence the student’s writing by analysing the mistakes in their composition.

## 2.2. Problems of writing

Grabe and Kaplan (1996) stated that the ability to write well is not naturally acquired for it requires a lot of practises and experience. However, learner's ability to construct words and produce a good meaning have not always been successful. Myles (2002) stated that writing as composing needs ability and functions as a narrative or descriptive to tell information and becomes argumentative to transform information into new texts. Writing is a complex skill that requires cognitive, creative, and linguistic abilities (Marhaeni, 2008). He also added that writing is a tool, as a cognitive process, which is used to present ideas and cognitively, the potential meaning is contained as a schema in the mind.

## 2.3. Problems with grammar

Writing is underpinned of the some aspects of grammar. DeKeyser (2005: 3) divided three factors why grammar is difficult to learn; complexity of form, complexity of meaning, and the complexity of the form-meaning relationship. He explains that the complexity of form occurs when learners have problems to express and put words such as morphemes and allomorphs in the right place where the problem of meaning complexity occurs because of either novelty or abstractness, or both. He added that morphemes and allomorphs are parts of morphology that is hard to learn in the second language (L2) learning even after many years in L2 exposure.

## 2.4. L1 transfer

Another difficulty in learning English tenses could be affected by a learner's first language (L1) transfer in general. Transfer as "the influence resulting from similarities and differences between the target language and other language that has been previously (and perhaps imperfectly) acquired" (Odin 1989: 27). Lado (1957) (cited in Ellis (2008b: 359) claimed that it will be easy for an L1 learner to have the elements as an L2 while, on the other hand, it will be difficult when the both elements are different. Lado formulated Constrastive Analysis Hypothesis (CAH) implies that L1 has a great influence in L2 learning.

## 3. Methodology

### 3.1. The primary data

The writer firstly analyzed the students' examination papers which were the examintaion of *Writing II* period 2011, semester 1. The papers were from Jakarta Central Regional Office (RO). This region covers 51% students' examination papers from several cities such as Bogor, Tangerang, Bekasi, Karawang, Batam, and Bandung. The writer took 30% samples of the whole population (135 papers) which meant 41 papers.

The grammatical accuracy of the primary data was measured based on the rules of the *simple past tense*, which contains a subject, past verb (verb type two), and adverb (of time). The data were then identified and classified into the categories of problems of verb, no subject, and incorrect adverb of time. The problems of verb into were devided six



categories. In this study, the analysis was only focused on sentences using *the simple past tense* and ignored the other types of tenses.

### 3.2. The interviews

The interviews were divided into two groups, the low mark and the high mark group, and conducted in the UT's ROs in two cities, Jakarta and Bogor, which were selected for being easy to reach. All the participants were working students in Jakarta and Bogor. No factors such as age limitation, gender, or job position were determined in the participants.

The writer invited 20 participants who were contacted by phone and email. In the implementation, not all participants could provide their time since they were busy and not ready for the interview. There were only seven participants who were interviewed. Three participants with a high mark and four with a low mark. The writer realized that this is the limitation for the study.

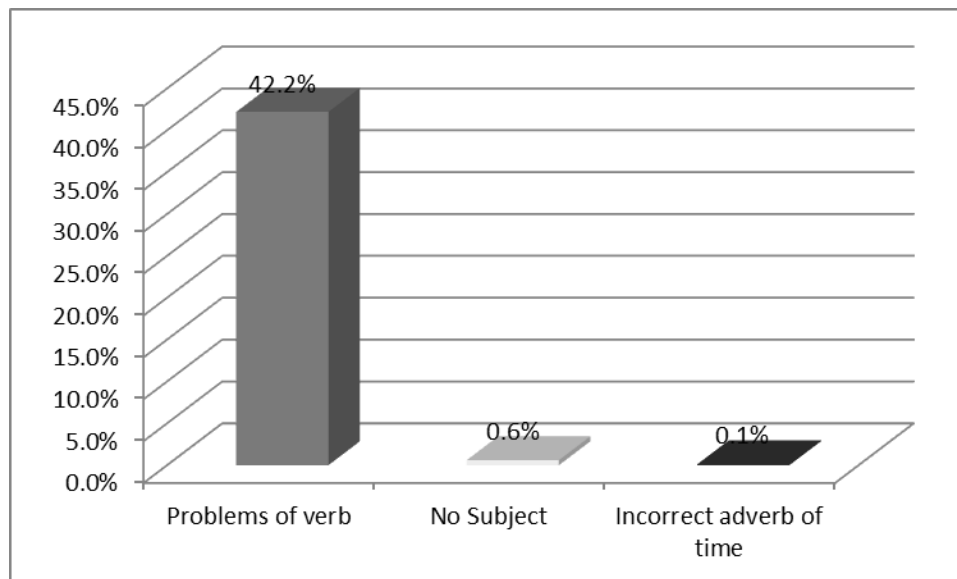
Each participant had 30 minutes for the interview and they had the same set of questions dealing with their beliefs, experiences, and problems about learning grammar, particularly the *simple past tense*. The interview was conducted in Indonesian to avoid misunderstanding and gaining incomplete information.

## 4. Findings and Discussions

### 4.1. The primary data

The writer analysed 978 sentences of 41 papers and found 420 sentences or 43% grammar mistakes in the students' writing. Based on the main categories, the mistakes dealt with problems of verb (413 sentences or 42.2%), no subject (6 sentences or 0.6%), and incorrect adverb of time (1 sentence or 0.1%). The mistakes dealt with problems of verbs contains of the use of incorrect verbs (31.6%), the use of double verbs (4.5%), the use of present verbs (1.6%), the use of past participle (0.5%), the use of infinitive (0.4%), and no verbs (3.6%).

Table1: Students' mistakes in applying the *simple past tense* in the course of *Writing II* (BING4105)



Since Indonesian sentence patterns do not have regular and irregular verbs, making a *simple past tense* sentence in English is considered difficult for Indonesian students. Brown (1998) stated that learning irregular verbs in English is complicated and difficult for language learners, even for those in university. Klein et al. (1995) also suggested that regular verb endings such as *-ed* are hard for many learners to process. Therefore, the writer considers that applying regular and irregular verbs is the main problem faced by the students.

The writer also noticed that L1 transfer can be one of the factors that affect students' mistakes in writing. In this study, the students had negative L1 transfer where the student's L1 influence their L2 learning. This could happen because there is no tense that refers to a particular situation in Indonesian. The uses of a verb in the present, past, or future time In Indonesian does not change.

#### 4.2. The interviews

The writer interviewed two groups; the low mark group and the high mark group. From the low mark group, the writer found two factors; no group discussion, and the students did not join the course's online tutorial. These factors are considered as the main possible problems for the low mark students while the high mark group only did not join the course's online tutorials. The interviews also dealt with how both group learned grammar. These interviews were meant to find out whether they did the same way or techniques in learning grammar.

##### 4.2.1. No group discussion

Busy working, did not have time, and being difficult to find friends had forbidden the students to have a group discussion. This could be one of the factors that

students understanding and comprehension in learning grammar are not maximum. As a result, they had to study alone as an independent learner to motivate themselves in the learning process. Independent learning in many ways is determined by the ability to learn effectively. Learning ability depends on the speed of reading and understanding the content of reading ability.

*'I once had a group discussion but never met them anymore for they were busy working and had a different schedule to each other. So, I decided to study alone.'* (017237XXX)

*'I had a group discussion but never join it. The meeting was weekly in KOMABITA (UT's English Lovers Club) in Central Jakarta. I could not come to attend the meeting every week.'* (015442XXX)

*'I did not have a group discussion to learn grammar for it was very difficult to find friends for making a group discussion. So, I did self-studying.'* (016432XXX)

Because of no group discussion, the students of this group was also lack of input and interaction. Many linguists believe that input provides language information to do the interaction among learners. This group was lack of conversational input where communication accours with other people and promotes learner language acquisition.

Comparing with high mark group, most of the students in this group had a group discussion when they had problems in grammar. They used their group discussion as one of the tools to help them improve their understanding about grammar.

*'Sometimes, I had group discussion to discuss one particular problem such as the simple present. We discussed about it in details and every member of the groups gave their ideas.'* (014668XXX)

The group discussion seems to be the key to success for this group to achieve a better score in their examination. They tried to spend their time discussing the problems they had with their group. This is a good strategy for distance learning for they had interaction each other. Mackey (1999) stated that interaction among learners enables them to provoke non target forms such as vocabulary, morphology, and syntax in SLA. Hopefully, learners can practise speaking and how to convey their understanding to share in the discussion with their peers.

#### 4.2.2. Did not join the course's online tutorials

Online tutorials are actually provided to support the printed learning materials. The online tutorials are meant to encourage the students to be active and also improve

their understanding of the printed materials. The online tutorials are also meant to facilitate communication through technology, which in distance education is expected to enable students to receive feedback from tutors when they have difficulties in learning.

*'No. I didn't have time to open online tutorials for I am tired working. I could access the Internet only in "warnet" (the Internet kios).' (017237XXX)*

*'I had difficulties to access the online tutorial because it was the first time for me. I didn't join the online tutorials in the first semester. I was surprised to see the online tutorial so I was lazy. I decided to study myself without the online tutorial.'* (016925XXX)

*'I missed the information about it. Sometime the information was late. I got the password and username but when I logged in there was nothing (blank). I think I also didn't have enough time to join the online tutorial.'* (016432XXX)

It can be argued that besides being busy and tired from working, the students were also not familiar with the technology of distance learning. Technology as one of the support tools in distance learning is important to help students improve their knowledge. Therefore, students' ability in operating computers, especially the Internet, is strongly required.

As with the low mark group, none of the students in the high mark group joined the course's online tutorials. This occurred because of being disinterested, afraid of slow feedback from the tutor, being computer illiterate, and having no internet connection at their home.

*'The problem was when I had learnt the module I actually was not interested in online tutorials. If I had joined the online tutorials, I was sure one tutor would have dealt with many students and would have separated. I was afraid I couldn't ask the tutor specifically and also had slow feedback from him or her.'* (016933XXX)

*'First, like I told you I didn't have the Internet access at home so I had to go to 'warnet'. Sometimes, I just had time at late night when my child had already gone to bed. I myself was computer illiterate for I needed my child to help me with the computer.'* (017929XXX)

Online tutorials are actually one of the best ways for this group to discuss their learning problems with their friends. Students could have discussed their problems not only with their friends but also with the tutor. Unfortunately, some of them had been worried before they tried to join the tutorials.

It is considered that both groups had low motivation for the course's online tutorial. Spratt et al. (2002) stated that low motivation discouraged the pursuing of autonomous activities. Motivation and autonomy are linked in that autonomy can be encouraged to develop students' motivation to learn. In this case, the teacher's role in giving advice to the students can help them develop their motivation. This motivation can then lead the students to improve their efforts in learning.

#### 4.2.3. Students' technique in learning grammar

##### 4.2.3.1. The low mark group

Most students in this group stated that they learnt grammar through their module, the Internet, and other grammar books when they were asked how they learnt grammar. One student watched TV and listened to radio programmes.

In learning grammar, students in this group spent one to two hours a week. Their reason was because they were busy working and felt tired when arriving home. They just used their time to learn grammar when they had time.

This group also had some problems in applying the *simple past tense*. Their problems were a) being not sure of the sentence they made, b) forgetting and not knowing what tense they had to use, and c) not understanding the tense well enough.

*'I think I couldn't differentiate to tell something using simple present or past tense. I was confused. I didn't know whether something I was telling used simple past or simple present.'*  
(017161XXX)

##### 4.2.3.2. The High Mark Group

All of the students in this group learnt grammar from their module, through group discussion, and other grammar books. It is surprisingly that non of the students learnt grammar through the Internet. This group not only discussed grammar with other students at the same university but also with other people. This is considered the group's success in understanding or solving their grammar problems.

In learning the module, the students of this group spent as much time studying grammar as those in the low mark group. In general, they spent about one to two hours a week learning their module. This occurred because they were also busy working.

In learning the grammar module, this group used their leisure time at their work place. They seemed to know that their leisure time was not enough and they used it whenever they had it. This is a good way for distance learning students to use their leisure time to learn the material.

*'I didn't have particular time to study. I opened the books when I had spare time during the working hours.'* (014668XXX)

Some students of this group, surprisingly, also had problems in applying the *simple past tense*. Their problems are a) being careless, and b) sometimes being confusing of several tenses. The writer considers that these are not really problems for this group for they were able to apply the *simple past tense* and they also got good marks.

## 5. Conclusion

It can be argued that students' writing in applying the *simple past tense* in their examination of *Writing II* were influenced by negative L1 transfer. This occurs because their L1, Indonesian language, does not have a particular tense that refers to a particular situation. Using the incorrect verb, double verbs, and no verbs in their writing are the evidence of negative L1 transfer.

Having no interaction, for having no group discussion, the students of low mark group did not have an engagement with the other students. This happened because they were busy working. They struggled learning the material themselves to comprehend and solve their grammatical problems. As a result, their grammar understanding is weak and they could not achieve what they expected as well.

Both groups also did not join the course's online tutorials. The writer notices that they were not motivated. Even though the course's online tutorials did not affect the high mark group, the provided facilitation promotes learners to learn and interact with other learners and tutors. The online tutorials are also provided to facilitate communication through technology, which in distance education is expected to enable students to receive feedback from tutors when they have difficulties in learning.

Students in distance education must be aware of their learning environment. They must motivate themselves, if they want to succeed, to use all the learning sources around them. The provided learning sources are meant to help them improve their understanding and learning.

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# Assessment of an ODL class based on Thailand's qualification framework

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## Abstract

Quality of education has been a major concern among open and distance learning institutions. The Thai Higher Education Commission required every higher educational institution to implement the Thailand Qualification Framework (TQF) since 2009. After the TQF was applied for a couple of years, many classes were assessed on the basis of this framework. This evaluation research followed the framework by assessing an undergraduate class, Print Media Production, provided by the School of Communication Arts, STOU. The research intends to assess the class in terms of (1) students' satisfaction; (2) learning skills based on TQF; and (3) suggestions to enhance the quality of course materials, mode of teaching, and students' performances.

The researcher applied survey and interview methods to collect data from the students enrolled the course and the professors responsible for the workshop session during the second semester of the year 2013. Purposive sampling was applied. Statistical analyses applied to analyze quantitative data included frequency, percentage, mean, and standard deviation. Descriptive analysis was employed in qualitative data analysis.

The result: (1) students' overall satisfaction with the class materials, such as textbooks, exercises, and workshop or training session was high; especially they felt the content was complete and well explained and the workshop was every helpful for their learning. (2) Among five topics of learning skills based on TQF (ethics, knowledge, cognition, relationship, and technology), the students indicated ethical issue was the highest learning issue, while other skills were rated as high. The professors were satisfied with students' performance and the output of the workshop. (3) Students suggested more assignments on journalistic writing and interviewing skills. This was relevant to the professors' suggestions that writing skills should be highly emphasized; either online or offline writing assignments should be done before attending the workshop session.

**Keywords:** teaching assessment, learning skill, Thailand Qualification Framework, printed media production

## Introduction

Quality of education has been a major concern among open and distance learning institutions. The Office of Higher Education Commission has designed the National Qualification Framework as a measure to evaluate the quality of programs available at universities using indicators that are on par with international standards. The Office required every higher educational institution to apply the Thailand Qualification Framework (TQF) since 2009.



The Qualifications Framework for Thailand's higher education system is designed to support implementation of the educational guidelines set out in the National Education Act, to ensure consistency in both standards and award titles for higher education qualifications, and to make clear the equivalence of academic awards with those granted by higher education institutions in other parts of the world. The Framework will help to provide appropriate points of comparison in academic standards for institutions in their planning and internal quality assurance processes, for evaluators involved in external reviews, and for employers, in understanding the skills and capabilities of graduates they may employ.

Programs developed within this Framework should not only lead to the knowledge, generic skills and professional expertise normally associated with studies leading to comparable awards throughout the world, but should also include particular emphases reflecting the policy priorities of Thailand. These priorities include emphasis on the transfer and application of cognitive skills in problem solving, creative thinking, and entrepreneurship; familiarity with and support for national culture and traditions; and reconciliation of those traditions with requirements for competitiveness in the international knowledge economy. Graduates should have the ability and commitment to engage in lifelong learning, capacity for effective communication including communication through use of information technology, and the ability to take the initiative in individual and group activities.

The framework groups the kinds of learning expected of students into five domains and describes learning outcomes at each level in each of these groupings. The domains are ethical and moral development, knowledge, cognitive skills, interpersonal skills and responsibility, and analytical and communication skills.

Learning outcomes for *ethical and moral development* are expected to apply at the level described for all learners, though there are also some field-specific items of knowledge that should be known by students in those fields such as codes of ethical practice for medical doctors, lawyers, journalists, etc.

Learning outcomes in the domains of *knowledge* and for *cognitive skills* are directly related to the field of study undertaken and details of the knowledge and skills appropriate to those fields should be specified in program and course specifications.

Learning outcomes for *interpersonal skills and responsibility* are intended to apply to all students at the level described regardless of field of study.

Learning outcomes for *analytical and communication skills* are generic descriptions that should apply to all students regardless of field of study. However, when the main focus of a student's field of study is in one of these areas a much higher level of performance is expected. For example, a student undertaking major studies in IT would be expected to have the levels of expertise in IT described under the headings of 'knowledge and cognitive skills' rather than the more general expectation for everyone described under the heading of 'analytical and communication skills.'

There are significant differences in the way learning occurs in the different domains. For example, students memorize information in a different way from the way their attitudes are formed, and they learn to apply cognitive skills in problem solving in a different way again. Very different processes are involved in learning to apply ethical and moral principles in everyday behavior and in improving interpersonal effectiveness

and capacity for leadership. This means that if learning outcomes are to be achieved in the different domains of learning, different teaching strategies that are appropriate for those different types of learning must be used.

### **Purposes of study**

The qualifications framework is an important tool for developing the quality of higher education. After the National Qualification Framework was applied for a couple of years, many institutions and courses were assessed on the basis of this framework. There is no exception for open and distance learning systems, since the learning outcomes of students should show similar standards in either closed or open systems. Based on the National Qualification Framework, this evaluation research studied an undergraduate class, Print Media Production, provided by the School of Communication Arts, Sukhothai Thammathirat Open University. Since 2011, the undergraduate program in communication study was revised and many courses had not been evaluated under the Framework. The purposes of this research are:

- (1) Assessing the students' satisfaction,
- (2) Evaluating their learning outcomes based on the five domains of learning stated in TQF,
- (3) Eliciting suggestions from both the students and the professors to enhance the quality of course materials, mode of teaching, and students' performances.

### **Research Method**

The Printed Media Production class provided knowledge about the printed media production process and systems, and journalistic skills such as news gathering, writing, editing, as well as publishing techniques. The course consisted of self-learning via reading materials (textbooks and exercises) and a workshop session.

Chapman (2002) explained that evaluation of effectiveness could generally be accomplished by applying a systematic approach (e.g. input, process, output and outcome). In this study, the input factors consisted of lecturers, reading materials, exercises and assignments. The process included course lectures and a workshop. Outputs and outcomes were students' learning based on the Framework.

The researcher applied survey and interview methods to collect data from the students and the professors during the second semester of the year 2013. Purposive sampling was applied. A questionnaire was used to collect data from 50 students who enrolled in the Printed Media Production class in the year 2013 and attended the workshop session at the main campus. The questionnaire was composed of questions on students' demographic information and their satisfaction with teaching strategies and educational media, such as reading materials, exercises, assignments, lectures and the workshop. They were also asked about the learning domains based on TQF (e.g. knowledge, ethical and moral development, interpersonal skills, cognitive skills, and analytical skills). Four professors responsible for a four-day workshop session were also interviewed. The questions focused on the students' learning process during the workshop session, evaluation of the output based on workshop assignments, and suggestions to improve teaching strategies and educational media. Statistical analyses were applied to analyze quantitative data including frequency, percentage, mean, and standard deviation. Descriptive analysis was employed in qualitative data analysis.

## Findings

There were two parts to the findings: survey data (students' background, satisfaction and learning outcomes) and interview data from the professors, as follows:

(1) *Students' background.* Most students enrolled in the class were around 31-40 years of age from around the country. Most of them were private sector employees or owned their own business; only some were government employees. More than half of them worked in media professions such as print, broadcasting and online media; such as reporters, copy writers, photographers, magazine or online editorial staff, public relations staff, DJs and others. A quarter of them had 1-5 years of professional experience. The rest had around 6 years work experience or more.

(2) *Students' satisfaction.* Overall, the students' satisfaction with the educational media, such as textbooks, exercises, assignments and workshop or training session, was high. They rated textbooks at the highest satisfaction level, especially for the category of clear and thorough content ( $\bar{x}$ = 4.26). The complete and well explained reading materials assisted them during the self-learning process at home. However, some of them stated that they did not receive the exercises and assignments before attending the workshop session. Some of them did not have enough time to read all materials and do the exercises; therefore, they were not well prepared to participate in the workshop. The students were highly satisfied with the workshop session, which was every helpful to their learning. They rated the workshop at the highest satisfaction level for categories such as orientation, lectures, skill training, professors' consulting and feedback ( $\bar{x}$ = 4.25-4.63). They also suggested either to increase more days of workshop or to create a second phase of workshop in order to learn more in-depth journalistic skills.

(3) *Learning outcomes.* Among five topics of learning skills based on the National Qualification Framework, the students indicated that ethical issues was the highest learning domain, while other skills were rated as high. Ethical and moral development included punctuality, responsibility, accountability, awareness of media professional ethics, and open-mindedness or welcoming all critics ( $\bar{x}$ = 4.32). Other domains were ranked the second and the third such as interpersonal skills, knowledge and cognitive skills and analytical skills. Interpersonal skills included team work and understanding of differences among other people ( $\bar{x}$ = 4.06). Knowledge and cognitive skills included searching for information, interviewing, systematic thinking and problem solving ( $\bar{x}$ = 3.97). The students also commented that there was too much reading and exercises while they had less time for self-study, since they were busy with their daily work and life. They suggested online educational media such as e-books and e-learning/online classes to help them during self-study sessions at home; which could be a good preparation before attending the workshop session. They also suggested putting emphasis on other media professional skills, especially interviews and news/articles writing, in either a workshop or e-learning/online classes.

(4) *Professors' feedback.* At the end of the workshop the students had to be able to produce a printed medium. In some semesters, the outcome would be a newspaper, magazine, or both a newspaper and a newsletter. In this semester of the year 2013 the outcome was an eight-page newspaper (tabloid size). The students were assigned to work in an editorial section of a newspaper. They were required to set up the newspaper

policy and define their target readers. Also, they were assigned to be editors, sub-editors, rewriters, news reporters, columnists, photographers, proofreaders, etc. The professors evaluated both process (while the students were working together on the newspaper production) and output of the workshop (the finished newspaper).

Overall, the professors were satisfied with students' performance and the output of the workshop. The professors commented on the students' contribution that their teamwork was good, especially work planning and assignment, but controlling was "average." Similarly, the editorial process, such as rewriting, editing, and editors' meeting and discussion, was good. However, news/articles writing and stories presentation were rated "average." The professors also detailed that since the students did not devote much time during the self-study process (e.g. some of them did not read textbooks or do exercises), they had problems connecting what the professors and lecturers discussed from the textbooks. There was a suggestion from the professors, similar to the students' suggestion, that teaching strategies should concentrate more on journalistic writing and interviews, either online or offline.

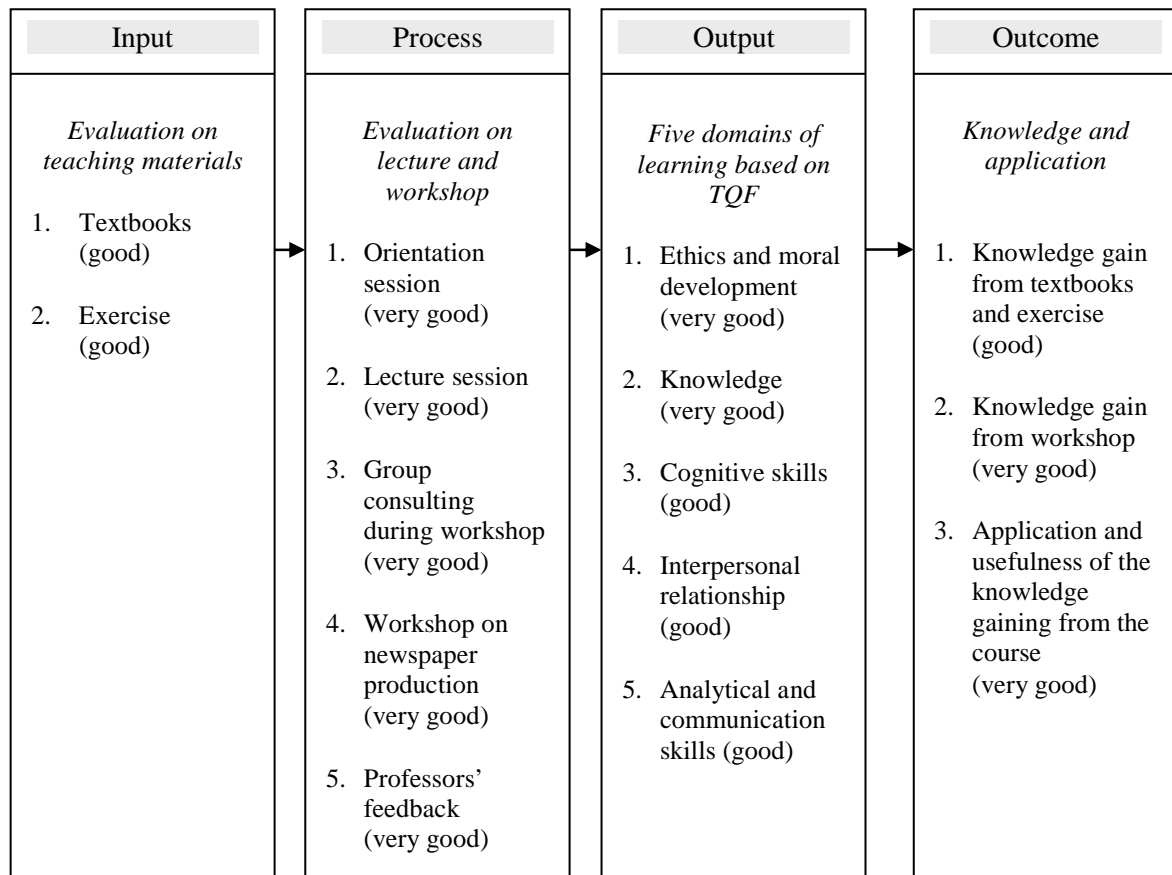


Figure 1: Summary of findings based on Chapman (2002) systematic approach

## Discussion

According to the students' demographic information, most of them had real-life experiences in relation to mass communications study. More than half of them had worked in print media. The experiences assisted them in cooperative learning with each other. Their satisfaction of the educational media was high, especially textbooks, exercises and assignments. This indicated the strength of STOU educational media that was helpful to the students' learning process. When students were asked to evaluate the knowledge they gained from those educational media, they said they found the textbooks provided the main knowledge of the subject and the exercises helped them review their learning. This could be because STOU's main educational media for undergraduate students is textbooks and exercise books. Unfortunately, the students did not spend enough time during the self-study period.

For the workshop session, students were highly satisfied with it, including the orientation part, lecture part, working on assignments, consulting part, and feedback from the professors. The teaching strategy in this session was prepared step by step. The professors had discussions before setting up the exercises and assignments. The workshop started with providing an overview about the subject. This is because the professors were aware that most students did not have enough time during self-study. Also, the lectures assisted them to figure out the print media production process. During the workshop the professors also worked closely with the students so they could help them while they planned and worked on the assignment. However, both the professors and the students expressed similar problems that there should be more exercises focusing on interviewing and data gathering in the field. These are required skills for reporters. It was suggested that there might be a role play between students in the class, or they might assign students to interview someone and write an article from the interview.

During the process of printed media production students provided feedback that they learned a lot from the workshop. They had to become editorial staff for a newspaper starting with blank paper until it was done. They knew that the newspaper timeline and deadline were limited; thus, they learned to work under time pressure. Some of them even suggested extending the workshop session. Another most valuable part was the professors' feedback and comments about their newspaper. The students found not merely they learned more, but also they could apply the suggestions to their real life when they went back to work.

Some suggestions should be considered though. Firstly, since in the ODL system most students have a job, the professors should design a mode of teaching to alert them to continuously study during the self-study period. Online assignments could play a key role. The online assignments might include interviews and writing articles. Feedback from professors, even online, could assist them to improve their writing and data gathering skills. Still, the readiness of the students, both in terms of technology and time, should be taken into consideration.

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# **The student evaluation process: A comparison of ODL and the traditional learning mode**

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## **Abstract:**

In educational system students' performance and learning is monitored through their assessment in activities like assignments, quizzes, class-discussions and exams conducted throughout the semester. Transparent and timely student-assessment plays an important role in enhancing the quality of education by providing guidelines to the teachers and institutions for future endeavors. Due to limited student-teacher interaction, the significance of student evaluation increases in ODL as compared to traditional learning. An effective evaluation indicates the existence of factors like correctness and originality of content, student effort, measure of high level skills and immediate feedback. In this study the student evaluation system is analyzed on these dimensions and further compared for ODL and traditional learning modes. Educational institutes can improve their student evaluation systems by blending the positive aspects of both the modes. Therefore, the outcomes of this study assist institutions to improve their evaluation processes and enhance the quality of education.

**Key words:** *ODL, student-evaluation process, assessment tools, formative assessment, summative assessment*

## **Introduction:**

Being the fast growing mode of learning; open and distance learning (ODL) has gained importance in the educational system. The rapid growth of ODL indicates its acceptance in the society and enhanced role in meeting the educational needs. Recent shift in education system from traditional to ODL has increased the significance of assessment tools in measuring the performance and effectiveness of learning system. Assessment is a vital part of teacher-student learning process of traditional and ODL system and both systems need to have effective assessment tools to responded the recent challenges of learning (Chaudhary & Dey, 2013). The accomplishment of learning outcomes in either mode of education is also tested through student evaluation. The large number of students in ODL has made the evaluation a challenge Okonkwo (2010) and enhanced the importance of assessment in ensuring the quality. Geographical diversity, large number of students and variety of degree programs have made the role of assessment imperative for the quality teaching and learning in ODL (Ngara, Ngwarai, & Mhute, 2012). A variety of assessment tools are used in traditional and ODL system, despite of the differences in both of the modes as basic traditional assessment tools remains same in ODL (Benson, 2003). The difference is in the implementation of assessment tools that should be effective. Understanding the various assessment tools used in traditional and ODL is necessary for quality learning, skill development of students and to understand the challenges of the assessment system. The satisfaction of students towards assessment is the indictor of success of an assessment system that is possible if it is properly managed.

The role of assessment for the success of ODL and traditional teaching cannot be overlooked because now learning systems are moving towards blended modes. The high growth potential of ODL as alternative source of learning has forced the traditional education system to introduce ODL or blended learning and to modify their procedures as well (Zakir & Ajaz, 2013). This shift has increased the importance of effective evaluation tools in both learning modes. In Pakistan although traditional learning system occupies major share but ODL is emerging as growing field and institutions are shifting towards ODL system. This study investigates various assessment tools used in traditional and ODL system of Pakistan. Findings of the study help in identifying the effective assessment tool for traditional and ODL systems. Based on results of the study, teachers and institutions can devise the strategies for selection and implementation of assessment tools to improve learning process.

## **Objectives of the study:**

1. To identify the differences in assessment tools of ODL and traditional learning systems
2. To identify the effective assessment tools of traditional and ODL modes



## **Research-background:**

Evaluating student performance is equally important for traditional as well as for ODL system. Assessment tools used in evaluation provides feedback on teacher-student learning and helps in improving the quality. Assessment is critical for any learning process (Beebe, Vonderwell, & Marius, 2010; Benson, 2003; Chaudhary & Dey, 2013; Dikli, 2003; Robles & Braathen, 2002), its role in ODL becomes crucial for ensuring the quality of teacher-student learning (Ngara et al., 2012; Niwaz, Noor, Khan, & Khan, 2013). The role of student-assessment is fundamental and challenging in ODL specially in online environments because of distance between teacher and students (Kearns, 2012). Assessment in education system provides feedback to students about their performance providing guidance to improve their learning, teachers use the assessment tools to assess the effectiveness of their teaching methodology and for institutions it is used to gauge the performance of their instructional mode. Assessment in ODL measures the academic achievements of students, serves as a source of informative feedback, demonstrate work quality and ensures accountability of teachers (Robles & Braathen, 2002). Assessment informs students about achievements Okonkwo (2010), their learning progress through different formal and informal assessment tools (Snae, Brueckner, & Hirata) and identify the challenges students face (Ngara et al., 2012). These stated objectives of the student-assessment can only be attained if the assessment is effective and an assessment is said to be effective if it is practical, constructive, real (Ngara et al., 2012), informative and timely (Gaytan & McEwen, 2007). Effective assessment assists teachers to improve the assessment tools and guide the students in identifying their problems (Chaudhary & Dey, 2013). Assessment is not restricted to assigning grades, it includes continuous improvement in the instructional modes for an effective learning. Traditional assessments are monitored and promote effective, self-assessing and self-directed learners whereas for ODL it is more crucial as direct monitoring is not possible.

Formative and Summative evaluation are two major components of traditional and ODL systems; where formative is an ongoing assessment providing feedback on student-teacher learning Ngara et al. (2012) and learning developments of ODL students (Chaudhary & Dey, 2013). Summative assessment is a final assessment used to evaluate overall performance of students through exams (Chaudhary & Dey, 2013; Ngara et al., 2012). Assignments, quizzes and class-discussions are used as formative assessment tools whereas, mid-terms, final terms, term papers, thesis or projects are used as summative assessment tools. An effective assessment requires balance between summative and formative tools (Beebe et al., 2010). Education systems especially ODL require proper integration between formative and summative assessment for effective learning process(Chaudhary & Dey, 2013). The role of assessment is significant for quality learning and providing feedback through assessment tools helps in improving the performance of all stakeholders of an education system.

## **Research methodology:**

This study aims to describe the student-evaluation system prevailing in ODL and comparing it with the traditional mode. The major participants of this evaluation system are students and teachers of both modes; therefore, both are defined as population in this

study. Sample was derived from this population through purposive sampling. It was ensured that investigated teacher must be involved in the student evaluation through multiple assessment tools, while student should at least be of second semester having adequate experience to share. Moreover, to ensure accurate comparison only those institutes of both the modes (ODL & traditional) were accommodated that are using the similar student-assessment tools. These specific criteria to select the sample place the purposive sampling as an appropriate technique. Both the parties were investigated through semi-structured interviews. To collect primary data, semi-structured interviews were appropriate as they allow the respondents to explain their view point along with providing opportunity to researcher to keep discussion in specific direction (Willig, 2001). 20 semi-structured interviews were conducted which provided the enough data on existing evaluation system of ODL and traditional learning modes. Reliability of data was ensured by repeating comments and got endorsed by respondents before documenting the responses. To enhance the validity of data, perspectives of both, students as well as teachers on applied assessment tools (assignments, class-discussions, quizzes and exams) were considered. Further secondary data on student participation and attained results were considered to verify the collected data.

### **Data Analysis:**

This study analyzed the student evaluation through four different assessment tools commonly practiced in traditional and ODL learning modes. These assessment tools include assignments, quizzes, class-discussions and exams conducted in a semester to evaluate students' knowledge. The data were gathered on these assessment tools from teachers and students of both ODL and traditional educational systems. The attained data is analyzed for each assessment tool separately in this section.

### **Quiz:**

An assessment tool practiced in both ODL as well as in traditional learning, but its usability is limited to undergraduate level, post graduate students are rarely graded on it. The quizzes are given 5-10% in total weightage for which students and teachers showed their satisfaction. Most of the quizzes are informed; surprised quizzes are only conducted in traditional mode because students are present at a single point of time which is not possible in ODL. Mostly quizzes are based on MCQs; fill in the blanks and true-false are used rarely. In few responses quiz was declared to assessing high level student skills. A limited time span is provided to attempt quiz which represents correctness of the content but cannot depict students' effort. Student participation is above average in quizzes. The marking of quiz is declared fair as solution can be either correct or incorrect and immediate feedback is only given in traditional mode in oral form. In ODL no feedback other than marks is provided to students for guidance. Therefore, it is concluded that quiz is an impartial mode to evaluate undergraduate students but it fails to determine student effort and provide detailed feedback to students in ODL. Its effectiveness is high in traditional mode as compared to ODL.

### **Class-discussion:**

Graded class-discussions are also common in ODL and traditional learning mode with 5-10% contribution in the grading scheme. According to most of the responses, regardless of learning mode, teacher assigned topics to initiate discussion. In traditional mode oral discussions are evaluated while in ODL discussions are made in writing. Assessment on discussion is highly dependent on teacher or in few cases evaluated by students attending the discussion therefore, chances of biasness are high and content cannot be reproduced for rechecking. This shortcoming does not exist in ODL as discussion is in written form and is visible to every student and the content can be remarked if requires. This tool is effective to assess student effort in a live class and originality of the content produced is also maximum as it is obvious to the evaluator. But this effectiveness can only be attained in traditional mode where live discussions are conducted. All these aspects are questionable in virtual discussions of ODL mode. According to teachers correctness of the content produced during discussions is adequate in both modes and it also provokes analytical skills of students. The provided feedback is immediate in a real classroom, while in ODL it is provided with result declaration. In the light of collected data it can be inferred that class-discussions are effective to stimulate analyzing skills of students ensuring originality and effort put by the student. But all these valuable aspects are attained in traditional mode. In ODL evaluation of discussions are fair and impartial as compared to the traditional modes which are entirely dependent on evaluators (teacher and/or student). Shortcomings of this tool in ODL can be addressed if virtual discussions are live at a single point of time.

### **Assignments:**

It is found as a major assessment tool for students in ODL and traditional learning system with 10-30% weightage in total marks. Effectiveness of assignments is highly dependent on teacher's approach and type of course. Practical and scenario based assignments stimulate higher order student skills in both modes. Moreover, at post graduate level, term papers are also assigned to students as assignments which are very effective. These types of assignments are mostly backed-up by detailed feedback and thorough check of correctness and originality. According to teachers, students' effort is shown in the assignment but the correctness rate is not exceptional. Originality of the content is questionable in assignments; in both modes it is very difficult to ensure the self-attempt of students. In both modes hardcopy and softcopy submissions are practiced. In hardcopy submissions, it is difficult to check plagiarism and cheating, while in softcopy submissions it is checked. Frequency of submission in soft copy is comparatively high in ODL. In traditional mode feedback is mostly provided orally and usually if desired by students. While in ODL, due to lack of direct teacher-student contact, it becomes obligatory to provide in-depth feedback in writing. Therefore, it can be concluded that assignments are an essential part of student evaluation system and is very effective for student learning. But teacher's personal effort in adding quality to the assignments ensures this effectiveness. The real benefit of assignments can only be achieved if it is mandatory for every teacher and in every course to develop quality assignments, stimulating high order skills of students. Assignment serves as a great source of student learning demonstrating the effort put by the students. But originality

check is weak specifically in traditional mode. ODL is found strong in assignments through better originality checks and detailed instructions & feedback.

### **Exams:**

The major and highly weighted (60-70%) assessment tool of both learning systems is exams. In all the responses two exams were indicated; midterm and final term exams per semester. Regardless of any mode, physical presence of students is required at designated places according to paper timings. Online based ODL uses their specially designed software where every student receives a unique paper submitted through virtual interface. While the other mode conducts exams in a traditional manner where students receive a standard paper attempted and submitted in hardcopy form. This aspect differentiates ODL from traditional mode in online system where every student is given a different paper which enhances the effectiveness of exams in ODL. Most of the students showed satisfaction with the syllabus covered in the exams which is communicated timely. According to students of traditional mode, paper duration is adequate, but ODL students complaint for paper duration. In online mode typing speed is crucial to attempt papers, the students not compatible with computers, face issues with the provided time. Especially for first semester students and in numerical subjects where use of symbols is high, typing speed is highly affected which resulted into increased complaints for paper duration. In Pakistan, ODL significantly serves the students of distant areas where educational facilities are limited. In such remote areas people are not computer proficient therefore, this issues is massive. Due to physical presence of students and close monitoring, exams are ranked at the top among assessment tools for originality check. Furthermore, produced content is also correct, which also represents the student effort in exams preparation. Exams at post graduate level are based on questions requiring analytical thinking, while for undergraduate students exams are relatively easy as compared to assignments and discussions. Fairness and impartiality is high in ODL in comparison to traditional mode, due to restricted teacher-student contact, while chances of biasness exist in traditional mode. Feedback on performance in exams is shared with students in traditional mode but in ODL marked papers are not made available to students as feedback. Consequently, exams are a backbone of student-assessment system offering ensured originality, improved correctness and high student participation. The difference in exams effectiveness between ODL and traditional educational system is the unique and standard paper for all the students.

## Analysis overview:

Table 1: Assessment tool ratings

Criteria	Assignments	Class-discussions	Quizzes	Exams
Correctness			High	High
Originality	High (ODL)			High (ODL)
Effort		High (traditional)		
Fairness in assessment	High (ODL)		High	High
Attendance				High
Teacher Feedback	High (ODL) Low (traditional)	High (traditional)	High(traditional)	High (traditional)
Level of Skills measured				High
Duration provided				Low (ODL)

## Conclusion:

Based on its significance in education system, student-assessment acts as catalyst for the learning process. Quizzes and class-discussions are more effective in traditional system whereas live student-teacher interactions are recommended in ODL system to increase tools' effectiveness. Assignments are more effective tool in ODL because of written, informative and timely feedback that enhances student's confidence on transparency in assessment criteria. Among all assessment tools; exams are rated high in terms of student satisfaction regarding syllabus covered, question types and marking fairness. In online mode of ODL, generation of unique papers makes it superior in terms of unbiased, transparent and fair marking. The strong ODL exams and assignment systems can be blended with the valuable quizzes and class-discussions to best utilize the evaluation system of both modes. Regardless of educational mode; each assessment tool has its own significance for the learning process and cannot be ignored.

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# Translation portfolio: From a task-based approach to a project-based approach

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## ABSTRACT

A variety of approaches to translator training have been adopted by translator trainers, or those institutions of higher education offering programmes in translator training. The approaches range from an *early training approach* to the *socio-constructive approach*. Unlike translator training that is commonly offered by conventional universities particularly at postgraduate level, this paper examines how both the *task-based approach* used during the period of instruction and the *project-based approach* given at a final academic year are integrated within the context of curriculum design for an undergraduate programme of study in translation employing open and distance learning systems, or in a situated learning environment. It further discusses the “washback effects” of translation portfolio as a final-year project conducted online (*e-assessment*). The data used for analysis come from student translators’ research papers associated with translation projects. A critical analysis of these issues is followed by a crucial discussion in relation to *increasing student autonomy*. The paper then concludes with an assertive view that translation portfolio based on a project-based approach proves to be more suitable for those students at the later stages having a strong background both in translation theories and research methods in translation studies, as opposed to those at the early stages normally exposed to controlled translation activities (i.e. task-based approach) provided both in the printed and digital learning materials (OER). Above all, the two approaches are compatible and complementary.

KEYWORDS: ODL, OER, project-based approach, task-based approach, translation portfolio, student autonomy

## 1. INTRODUCTION

As an integral part of curricular and syllabus planning and design, assessment has also been considered as one of the most important elements of teaching and learning process, including translator training (House, 1997/2001; Kusmaul, 1995; Hatim & Mason, 1997; Dick & Carey & Carey, 2005). There are various methods that can be applied in this respect ranging from formative to summative ones (Martinez Melis & Hurtado, 2001; Angelelli & Jacobson, 2009), including peer and self-assessment or learning portfolios (Kelly, 2005, p. 130). Whatever the methods might be used, student autonomy should come first as this is congruous with the notion *student-centered assessment* which is not fully supported by the task-based approach. Kelly (2005) argues that more emphasis should be placed more on the student autonomy and also teaching approaches as mostly practised in face-to-face classrooms.

This paper, however, debates on the ways in which the student autonomy can be achieved through the didactics of translation delivered online (*e-learning*) which departs

from a point where a task-based approach on the basis of both printed and digital learning materials, referred to as *Open Educational Resources* (UNESCO & COL, 2011, p. v) is adopted and then ends at another point with a project-based approach, particularly within the context of open and distance learning (ODL). In other words, to what extent these two distinctive approaches (i.e. task-based and project-based approaches) are applicable, complementary and effective within the ODL teaching and learning environment as applied by the Undergraduate Programme of Study in Translation at the Indonesia Open University, known as *Universitas Terbuka* (UT).

In terms of the education policy, the Directorate General of Higher Education of the Ministry of National Education and Culture of the Republic of Indonesia has issued a Regulation No. 152/E/T/2012 concerning a publication of a research paper by both graduate and postgraduate students (i.e. Bachelor's Degree, Master's Degree and Doctorate Degree Programmes), referred to as *Karya Ilmiah (Karil)*, as one of the degree requirements. The Undergraduate Programme of Study in Translation at UT in response to such national policy has adopted Kelly's term, *Translation Portfolio* (TP) as part of translator training in assessing the students' competence in translation, both theories and skills. The TP has been obliged to all of end of programme students since 2013.

## 2. SOME APPROACHES TO TRANSLATOR TRAINING

As far as the didactics of translation is concerned, a number of alternative approaches to translator training have been proposed by many curriculum development experts, particularly the curriculum for the Programmes of Study in Translation. Kelly (2005, p. 11–18), for instance, summarizes that there are at least eight approaches to translator training. To begin with, *an early training approach* assumes that the students learn how to translate texts from the SL into the TL without having any early preparations and also without being exposed to some models of *correct translation* beforehand. In other words, such an approach is *teacher-centred* in nature, also referred to as *teacher-centred transmissionist*.

Unlike the previous approach, the second approach places training objectives for the benefit of translation students as the top priority (i.e. *the importance of establishing teaching objectives*). Delisle (1993), as cited in Kelly (2005, p. 11–12), proposes eight objectives for translator training, both general & specific objectives: (1) *metalanguage of translation for beginners*; (2) *basic documentary research skills or the translator*; (3) *a method for translator work*; (4) *the cognitive process of translation*; (5) *writing convention*; (6) *lexical difficulties*; (7) *syntactic difficulties*; and (8) *drafting difficulties*.

The third approach is more oriented toward *profession-based-learner-centred* (Nord, 1988/1991), as cited in Kelly (2005, p. 12–13). Nord argues that such an approach gives more emphasis on giving stimulus to professional practice. In brief, translator training should not only be clearly purpose-based but also more realistic (Nord, 1997).

Gile (1997), as cited in Kelly (2005, p. 13–14) places emphasis on the student's translation as a product, compared to both Delisle and Nord who focus more on the process of translator training.

Kiraly (1995), as cited in Kelly (2005, p. 14–15) adopts an empirical approach to translation studies which is based on Cognitive Science. One of the notions proposed by



Kelly is *self-concept* and *thing-aloud protocol study* that put stress upon translation process.

*Situational approaches* (Vienne, 1994), as cited in Kelly (2005, p. 16) relies on a logical thinking that translation activities done in the classrooms should be in the form of a series of translation tasks that have ever professionally completed by the tutors. The tutors in this respect play a role as initiators in the process of translation. According to Gouadec (1994), as cited in Kelly (2005, p. 16), translator trainers incorporated real translation commission by real clients into the training programme.

*Task-based approaches* (Hurtado 1999;<sup>1</sup> Gonzáles & Davies, 2003, 2004) had been applied in teaching and learning foreign languages. Such an approach is based on a series of translation activities having similar aims and also final translation products. The task-oriented approaches are in line with the curriculum design based on learning outcomes. In addition to this, Nunan (2004) within the context of language teaching also proposed seven principles associated with task-based approaches.<sup>2</sup>

Robinson (2003), as cited in Kelly (2005, p. 17), also proposes an approach that tries to balance between slow academic learning (i.e. *conscious, analytical, rational, logical and systematic*) and fast, real-world learning (i.e. *holistic, subliminal*), as seen in the following quote.

[T]ranslation is [an] intelligent activity involving complex processes of conscious and unconscious learning; we all learn in different ways, and institutional learning should therefore be as flexible and as complex and rich as possible, so as to activate the channels through which each student learns best (Robinson, 2003, p. 49).

Robinson's thought about professional translators regarded as long-life learners is in fact parallel with the latest development in higher education in general that allows the design of a variety of translating texts conducted in the classrooms and also in self-learning situations as in the case of ODL systems employed by UT.

*The socioconstructive approach* pioneered by Kiraly (2000), as cited in Kelly (2005, p. 18), is considered as a shift from the previous cognitive approach to the social constructivism approach having an orientation to collaborative approaches in translator training. The essence of such an approach is integrating student's self-concept into socialisation in translator's professional community through authentic translation practice even though such an approach is against the task-based approach.

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<sup>1</sup> "a unit of activities in the classroom, representative of communicative processes, intentionally aimed at learning, and designed with a specific purpose, a given structure and a working sequence", "a set of tasks geared to achieve the chosen aims" (Hurtado, 1999, p. 49-50)

<sup>2</sup> *scaffolding* (i.e. "lessons and materials should provide supporting frameworks within which the learning takes place"), *task dependency* (i.e. "within a lesson, one task should grow out of, and build upon, the ones that have gone before", *recycling* ("recycling language maximizes opportunities for learning and activates the 'organic' learning principle"), *active learning* (i.e. "learners learn best by actively using the language they are learning"), *integration* (i.e. "learners should be taught in ways that make clear the relationships between linguistic form, communicative function and semantic meaning"), *reproduction to creation* (i.e. "learners should be encouraged to move from reproductive to creative language use"), *reflection* (i.e. "learners should be given opportunities to reflect on what they have learned and how well they are doing") (Nunan, 2004, p. 35-37).

### 3. TRANSLATION THEORIES VS TRANSLATION PRACTICE, STUDENT AUTONOMY, AND CHALLENGES

Within the context of curriculum design, including the curriculum for the Undergraduate Programme of Study in Translation at UT, designing translation-oriented activities is regarded as one of the most important elements prior to designing the assessment methods. Kelly (2005, p. 113–128) argues several aspects that need to be taken into consideration when designing translation learning activities: (1) *theory/practice*; (2) *language learning/translation*; (3) the sequences of learning activities involving the *tasks* to be set and a *project* to be assigned at the end of a training programme; (4) the criteria for selecting text types.

There have been debates among translation curriculum experts and designers on what comes first, either translation theories or translation practice (Li, 2002; Nord, 2005). For those who are in favour of deductive approaches, they might teach the students relevant translation theories in the first place before doing translation activities; whereas those who prefer to adopt the inductive methods, they would start from translation practice and then followed by learning translation theories in order to deal with translation problems (Newmark, 1988; Nord, 1991). Kelly (2005) argues that whatever the methods they use, this basically depends on the student learning styles even though the inductive methods normally contribute to the notion of *deeper learning*.

The sequences of learning activities related to translating the ST(s), according to Kelly (2005, p. 115–117), should start from adopting a *task-based approach* and then end with applying the *project-based approach*. This is intended not only to increase the student autonomy but also giving opportunities for the teachers/trainers to select teaching approaches appropriately, as seen in Figure 1.

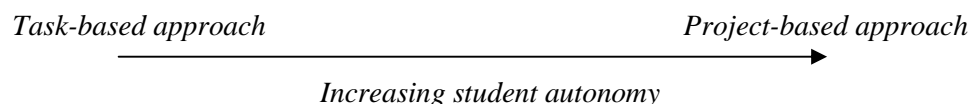


Figure 1: Student Autonomy and Appropriate Teaching Approaches

A relevant research with a particular emphasis on teaching translators through Self-Directed Learning (SDL) was conducted by Zhong (2008). His study was aimed to answer three research questions. To begin with, SDL can be applied in order to acquire translation expertise and also to achieve learners' learning goals and objectives. In addition to this, SDL is fairly effective if the learners have clear-cut objectives, positive attitude, active use of learning resources, support and supervision, a sense of accountability and self-responsibility. Finally, generally speaking, the learners like the translation pedagogy and also have comparable perceptions to the academic literature on the pedagogy.

In terms of translator training in association with of *e-learning*, Pym (2009) also argues that “distance learning is becoming easier to organize and presents many advantages (notably mixed-language groups for tandem learning, and greater student catchment areas for highly specialized courses), although we still know very little about how it affects basic pedagogical practices in this field [translator training].)”

## 4. METHODOLOGY

### 4.1 Subjects

There are 69 end of programme translation students registered for the semester 1 of 2014 involved in the project (TP). The project which takes the form of research paper is meant as one of the requirements for obtaining the Undergraduate Level of Degree (i.e. Bachelor's Degree) in Translation at UT as obliged by the national education policy, apart from an end of programme written examination dealing with English-to-Indonesian-to-English translation core courses (i.e. translation theory, text analysis in translation, translation practice) as part of the curriculum. They are then divided into four virtual classes; by design, each class has a maximum of thirty students. As a result, some classes may have less than thirty students.

The translation students who register for the end of programme written translation examinations (i.e. *Tugas Akhir Program*) will automatically be registered as participants in the TP (*Karya Ilmiah*) virtual classes. Since its introduction in 2012 and then applied at UT in 2013, the two different summative functions have been integrated into a single final year assessment. However, starting from semester 1 of 2015, both will contribute to the final grades awarded to the translation students.

### 4.2 Procedures

The TP online tutorial package is divided into eight weeks, including the Introductory Week, by using the *Moodle* learning management software. The first three weeks (i.e. Week 1-3) are intended for providing initiation materials (e.g. guidelines for the TP and its format, tasks setting<sup>3</sup>) along with the slots for Discussion Forums; Weeks 4-6 are the slots for submitting the drafts of TP through online; Discussion Forums are also provided for the students; a tool available in the software through which tutor-student and student-student interactions can take place, as seen in Figure 2.

Online feedbacks on the research questions, relevant literature review (Newmark, 1988; Baker, 1992; Nord, 1997; Munday, 2001; Hoed, 2006), methodology, results<sup>4</sup> and discussion<sup>5</sup> as well as conclusions are given on each draft of the TP.

### 4.3 Data Collection

Both the qualitative and quantitative data for analysis are taken from two sources: (1) the students' performance in the translation portfolios or research papers to be

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<sup>3</sup> The research paper, referred as *Karya Ilmiah (Karil)*, for the Undergraduate Programme of Study in Translation are termed *Translation Portfolios (TPs)* — a single, or a collection of translation work/project done by the end-of-programme translation students which describes the process of learning followed by the students translation (Kelly 2005). The TP must be English-Indonesia-translation-oriented in nature, rather than those topics related to English language skills. They are instructed to avoid those irrelevant topics as they will not get online academic counselling.

<sup>4</sup> A translation of a particular text type chosen, either narrative, descriptive, procedural, report, explanatory, expository, or discussion text that belongs to one of the categories/subcategories of a particular field; the source text (ST) is between 500 and 1000 words in length.

<sup>5</sup> A comparative analysis involving the ST and the TT which shows the learning process that the students have gone through, especially in relation to the theoretical aspects of translation appeared during the process of translating the selected ST. The students are advised to refer to translation theories they have learned in the translation course books, or to those those relevant translation literature.

assessed by the tutor in charged based on some criteria, and (2) online questionnaires distributed to the translation students who register for the project which takes the form of TP.

In terms of article review<sup>6</sup> and translation e-assessment (Hatzipanagos, 2012), the TP(s) submitted online by the translation students are marked according to a set of criteria associated with *linguistic factors* (i.e. lexical, syntactical, textual) and *extralinguistic factors* (cultural, thematic, encyclopaedia), *transfer problems*,



Figure 2:  
TP  
Online  
Tutorial  
Package

*psychophysiological* and *professional/instrumental* aspects (House 1981/1997; Martinez Melis & Hurtado, 2001) ranging from *excellent*<sup>7</sup>, *very good*<sup>8</sup>, *good*<sup>9</sup>, *satisfactory*<sup>10</sup>, and *unsatisfactory*<sup>11</sup> (Kelly, 2005, p. 141-142) even though this criteria (i.e. *criterion-referenced assessment*) are not rigidly applied during the first few semesters when the policy was introduced by the ministry concerned in 2012. There are two reasons for this: one is that UT actually has a compulsory end of programme written translation examination, referred to as *Tugas Akhir Program (Code: BING4500)* having four credit

<sup>6</sup> i.e. originality, title-content reflection, research objectives, relevant literature review, appropriate methods, deep translation analysis, findings-literature review discussion, and conclusions

<sup>7</sup> The students have been able to identify *all* cultural differences involving the source text and the target text and have suggested appropriate solutions to *all* or *almost all* existing translation problems in the source text.

<sup>8</sup> The students have been able to identify *almost all* cultural differences involving the source text and the target text and have suggested appropriate solutions to *most* translation problems existing in the source text.

<sup>9</sup> The students have been able to identify *most* cultural differences involving the source text and the target text and have *significantly* suggested appropriate solutions to the existing translation problems in the source text.

<sup>10</sup> The students have been able to identify *a significant number of* cultural differences involving the source text and the target text and have *occasionally* suggested appropriate solutions to the existing translation problems in the source text.

<sup>11</sup> The students have not been able to identify *a significant number of* cultural differences involving the source text and the target text and have not suggested appropriate solutions to the existing translation problems in the source text.

points, and thus contributes to the students' cumulative achievement index; the second reason has to do with the fact that the project has zero credit point. Still, it is compulsory in terms of the national education policy issued by the government as mentioned earlier.<sup>12</sup>

The data taken from Semester 1 of 2014 is processed by continuously assess the first four drafts submitted by the students online. Online feedback is given on each draft of the TP associated with research questions, relevant literature review, methodology (methods, data and data processing), results (i.e. translated text) and discussion (i.e. translation phenomena analyzed qualitatively) and conclusions (i.e. answers to the research questions).

## 5. RESULTS AND DISCUSSION

### 5.1 *Translator Training at UT on the Basis of the Task-Based Approach*

Following Hurtado (1999), Gonzáles & Davies (2003, 2004), and Nunan (2004), the *task-based approach* has also been applied at UT in designing and delivering translation course materials through online learning. There are at least twelve translation core courses, apart from translation theory and text analysis courses, in the curriculum of Undergraduate Programme of Study in Translation at UT.

The application of task-oriented approach can also be found in each learning activity of the twelve translation core courses available both in print and digital formats that the translation students can access through UT Digital Library (UNESCO & COL, 2011). The students have a lower degree of autonomy in this respects as the translation tasks are mostly controlled by the translation coursebook writers, referred to as *task dependency* as a principle of task-based language teaching (Nunan, 2004).

As for the first translation core course (i.e. *English for Translation*)<sup>13</sup> having 2 credit points equals to 6 modules, the translation students are provided with translation activities operating at the sentence level. A short intermedia level text written in English is given as a context for translation in each learning activity based on which a model translation is also given along with a brief explanation in terms of relevant translation theories. This is then followed by a series of translation tasks in which a number of English sentences associated with intermediate level of grammatical patterns are involved. The sentences are extracted from a specially designed corpus using a concordance programme. In other words, the translation activities are task-based in nature (*task-based approach*) having similar aims (Nunan, 2004), that is, to make the translation students are able to translate short English sentences into Indonesian as accurately, as clearly and as naturally as possible.

Similar format of learning activities and translation tasks are also applied to the second translation course (i.e. *Grammar Translation Exercises*), but with the emphasis on Indonesian-to-English translation as expected competence. As far as the *student-centered learning* concept in concerned (Simonson, *et al*, 2012, p. 195), alternative translation versions are also provided so that the translation students have the answer

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<sup>12</sup> Commencing in Semester 1 of 2015 registration period (i.e. 2015.1), the *Karya Ilmiah* (research paper) will contribute twenty per cent to the final grades together with the marks given to *Tugas Akhir Program* (end of programme examination) which is worth eighty per cent deriving from fifty per cent of the translation written examination plus thirty per cent of students' participation in its online tutorial sessions.

<sup>13</sup> English-to-Indonsian translation

keys to compare with. This is one of the characteristics of distance education in which some of the tutor's functions in terms of feedback on the students' translational work are integrated into the printed learning materials.

Unlike the previous translation courses, the other ten core courses (i.e. *Translation* 1–10) have similar aims — translating various text types or discourse genre of a range of subject areas from English into Indonesian, and vice versa (Larson, 1984/1997; Hatim & Munday, 2004). However, since this is an Undergraduate Programme of Study in Translation (Malmkjær, 2004; Nord, 2005; González Davies, 2004, 2005), emphasis is placed much more on the English-to-Indonesian translation, as opposed to Indonesian-to-English translation. The translation tasks in each learning activity are set on the basis of paragraphs as units of translation. Alternative translation versions as feedback, or for comparison with the students' work are also given<sup>14</sup> together with relevant translation theoretical justification.

To conclude this section, the twelve translation core courses are specially designed on the basis of the task-based approach delivered online; each is supported by an online tutorial package comprising eight translation-oriented initiations posted weekly, other three self-translation assignments, forums of discussion; all contribute thirty per cent to the end of semester written examination which is worth seventy per cent. Still, the online tutorial packages are task-based in nature having similar aims and final translation products.

## 5.2 *Translator Training at UT on the Basis of the Project-Based Approach*

As opposed to the previous task-based approach applied during a period of instructions, either through self-study or online, the project-based approach is also applied at the Undergraduate Programme of Study in Translation at UT. As mentioned earlier, this is in line with the Regulation No. 152/E/T/2012 made by the Directorate General of Higher Education of the Ministry of National Education and Culture of the Republic of Indonesia concerning a publication of a research paper by graduates of Bachelor's Degree, Master's Degree and Doctoral Programmes as one of the requirements to qualify for such degrees.

To address the Ministry regulation, the Undergraduate Programme of Study in Translation at the Indonesia Open University requires its end of programme translation students to write a research paper, referred to as *Translation Portfolio* (Kelly, 2005), which is project-based in nature through which student autonomy would increase when the translation students write a TP, either individually or in groups (Kelly, 2005, p. 138–139). By adopting the project-based approach, the students have more freedom to select a particular type of text<sup>15</sup> as the ST (i.e. English) to be rendered into the TL (i.e. Indonesian). This practice is also in line with the last two principles suggested by Nunan (2004) called *reproduction to creation* through which the students have opportunities to reproduce, or even to create a new target text in Indonesian, and *reflection* based on the tutor's continuous assessment carried out during the period of online academic

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<sup>14</sup> These are provided in the model translation and also in the answer keys to translation exercises and formative test sections.

<sup>15</sup> i.e. narrative text, descriptive text, report text, procedural text, explanatory text, expository text, or discussion text; this is also relevant to the fact that in professional translation practice, translators often come across some of these text types with which they should therefore be familiar with.

counseling or online clinic which reflects their translation performance in the TP(s) submitted online, referred to as *e-assessment* (Hatzipanagos, 2012).

In terms of structure, like most research papers, the TP at UT has the following sections: (1) introduction comprising the background, research questions, objectives, and the benefits of TP for the readers; (2) literature review; (3) methodology consisting of subjects, procedures, and data collection; (4) results and discussion focusing on the link between translation problems encountered in the selected text and what translation strategies (i.e. translation theories) to use; (5) conclusions and recommendations; (6) references.

Unlike the task-based approach, the TP is specially designed to assess individual students' competence in producing a piece of research paper associated with translational work, or products (Nord, 1991; Kiraly, 1995). For this purpose, a package of online tutorial is also provided for the translation students. They are required to upload their first, second, third and fourth drafts using *Moodle* learning management software in order to get feedback from the tutors. The students are given an opportunity to choose a particular text type or discourse genre that they are happy or familiar with. Thus, this pre-translation activity is closely relevant to what the translators normally do when completing the given translation tasks. Table 1 presents a distribution of discourse genre that the translation student chose for writing their individual projects. The data is taken from Semester 1 (i.e. 2014.1 registration period).

Table 1: Distribution of Discourse Genre Chosen by the Translation Students

Discourse Genre/Text Type	N	%
Narrative text	15	35.7
Expository text	12	28.6
Report text,	6	14.3
Descriptive text	4	9.5
Procedural text	4	9.5
Explanatory text	1	2.4
Discussion text	0	0

Table 1 shows that narrative texts have been mostly chosen by the translation students for their projects, followed by expository texts. There are at least two reasons, among others, why narrative texts are popular among them. First, this type of text is easily found, either in printed forms or via the Internet, compared to other types of text. Second, it can also attract students' emotional feeling since it presents a context, or tells a story that most readers like to read, even to translate it from one language into another language. In other words, context is very important in setting translation tasks. This translation phenomena support the notions of *students' interest* and *relevancy*, as pointed out by Widdowson (1978).

Like most journal articles, the TP as highlighted earlier has the following components: introduction, literature review, methodology, results and discussion, and conclusion). Within the context of e-learning, online initiations (i.e. learning materials) on these are posted weekly through UT-Online (the university OER facilities). As for the introduction, most students have difficulties to write their research aims which are translation-oriented due to absence of sources associated with research methods in Translaion Studies. To solve this problem, individual students are given online feedback

on their first draft using track changes as to how to revise their research aims which should be more specific and translation-oriented.

Writing a literature review related to translation theories used for data analysis seems to be one of the major problems faced by most translation students at UT. This is due to the fact that there is only one translation theory coursebook available for them to refer to. To sort out this problem, they are encouraged to use other translation textbooks or references for their papers, especially in association with translation strategies, as suggested by Newmark (1988), Hatim (2001), Molina and Murtado (2002), and Hoed (2006).

Methodology is the third section in the students' paper which consist of methods (i.e. qualitative method, comparative model), data (a text type with 500 to 1000 words in length translated into Indonesian by individual students, including the reasons for choosing the text), and data processing (i.e. stages of obtaining the source text and target text for a comparative analysis (Nord, 1991; Karnedi, 2011a; Karnedi, 2011b) in order to find out what strategies are adopted in solving particular translation problems that come up when completing the project. A solution to these problems is also given to individual students by giving feedback on their methodology again using track changes.

The results and discussion section seems to be the most difficult part of the paper, or project in which the students need to analyze the data comparatively (ST  $\approx$  TT) in order to indentify translation problems in the ST and try to find out alternative strategies in dealing with those problems. Translation analysis is done for each paragraph of the ST and the TT focusing on translation phenomena. Things are getting more difficult for the students when they are not strong enough in translation theories highlighted in the literature review section. To put it simply, data (i.e. ST and TT) and translation theory are mixed together in the discussion section with the research questions in mind.

At the end of the discussion section, the students write a summary of translation techniques adopted (Molina & Hurtadi Albir, 2002) as research findings before making conclusions where answers to the research questions are presented.

### *5.3 Students' Perception*

TP(s) also reflect the translation students' perception on the online tutorial package specially designed from writing the end of programme project (i.e. research paper). The thirteen questions in the online questionnaires can be grouped into three main categories: (1) the design of the TP online tutorial package (i.e. questions 1-4,7, 8, 13); (2) the theory-related project (i.e. questions 5,6); and (3) the tutor (i.e. questions 9-12).

As seen in Table 2, generally speaking, the translation students who participated in the online tutorial package of the project have a positive perception on the ways in which the online tutorial was conducted. This is quantitatively shown by the scores given to each question in the online questionnaire by the repondents ranging from four to five; some questions even receive much higher scores (i.e. TP content and format, project-based approach, expectation, tutor's knowledge), as seen in the following translation students' comments.

To me, the tutorial designed for the TP was very helpful because I could understand those mistakes available in the drafts of my project; this made me realize that I had written it rather carelessly. (My Translation)



I received feedback from you that gave me, as a student, strong motivation; your supervision is highly appreciated; the weaknesses are not merely on the tutor's side but also on the students because of their limited knowledge leading to low self-confidence, limited time available due to heavy workload, or unreliable Internet connection. I am sure that you have done your best; I realize that you cannot stay online all the time to help the students. They are required to study independently at UT (My Translation)

It is good and thank you.

However, other aspects of the TP online tutorial package still need to be enhanced. As for the first section, the TP organization, aims, frequencies of feedback given need to be improved. Additionally, the tutor also needs to show higher level of interest and enthusiasm in running the online tutorial, including the degree of feedback provided, either individually or collectively through the existing forums of discussions, as seen in the following comments.

I have some suggestions: first, the tutorial materials need to be enriched with the materials taken from other textbooks; second, the tutor in charge needs to give feedback daily so that the participants are getting more motivated and productive; third, the computer system used for the tutorial was unfriendly; there are many unknown features and also without having adequate operational information (My Translation).

In my opinion, the online counselling is already good. But, I hope in the future the tutor will be more active and give immediate responses to the students' questions (My translation)

The tutor should be more enthusiastic in giving supervision on the TP so that it is easier for the students to complete their own project that might have taken much energy in order to get the best results. (My translation)

One of the reasons for those weaknesses is the fact that there is only one tutor in charge who is responsible for 5 classes of the TP online tutorial (i.e. 69 translation students), apart from running online tutorials for other three core translation courses, each with one class; the former (i.e. the TP online tutorial package) seems to be relatively more time consuming from the tutor's point of view since it deals with providing a series of back-and-forth feedback on each (out of four) draft of TP that the students submit online. In total, the tutor runs eight virtual classes altogether in one semester even though tutors at UT by design are only required to handle four classes at maximum. In comparison, tutors from other ODL institutions are mostly assigned to teach one, or two online classes per semester (i.e. *low student-to-tutor ratios*). Lentell and O'Rourke (2004) argue that tutoring a large number of students as in the case of ODL institutions in Africa, Asia (including at UT itself), and the Caribbean seems to be the challenge that might not be met. The authors even give an early warning to all ODL stakeholders that "ignoring this issue will lead to the failure of ODL to deliver on its

promise: increasing accessibility for large numbers of learners to education and training opportunities.”

Table 2: Students Responses to TP Online Questionnaires  
(adapted from Aken 1996)

NO	QUESTION	1	2	3	4	5	N/A
1	The TP online tutorial package have been well-organized.	1	1	1	9	7	
2	The aims of the TP online tutorials have been defined and met.	1	1	1	8	8	
3	The materials of initiation for the TP online tutorial have been appropriate in terms of content.	1	1	1	6	10	
4	The given TP format makes it easier for the translation students to complete the project (TP).		2	2	5	9	1
5	Through the project (TP), the translation students have freedom in selecting a particular text type as the source text, or data ( <i>project-based approach</i> ).			1	4	13	1
6	Translator training programmes should start from the task-based approach (through controlled translation exercises provided in the course books, or given in the end of semester examinations) and end with the project-based approach (TP)	1	1	1	6	7	1
7	The TP standard of expectation is quite reasonable and fair/can be met.		1		6	11	1
8	The frequencies of guidance/online clinics are reasonable & fair).		1	3	8	2	
9	The tutor has deep knowledge about the TP materials.		2		5	11	1
10	The tutor shows high interest and enthusiasm is running the online tutorials (TP).		2	2	1 4		
11	The tutor provides adequate feedback, either individually or through the forums discussion.		2	6	9	2	
12	Generally speaking, the tutor is excellent.	1		1	5	11	1
13	In general, the quality of the online tutorial package (TP) is excellent.	1		1	8	8	
For future improvement, please type below if you have any suggestions related to the online tutorials package (TP) .....							

One of the alternative solutions to the above problems is perhaps by forming a team of tutors dealing with the TP online classes as mostly practised in face-to-face translation classes. To do so, recruiting more tutors needs to be carried out so that translation students who do their translation projects will receive sufficient feedback on the drafts of their TP. Nevertheless, recruiting new tutors has impact on the provision of not only technical training for those tutors but also those content-related preparations

that need to be periodically evaluated by the translation course coordinators in charge leading to high quality of tutors and online tutorial materials.

## 5. CONCLUSION

This study has specially addressed some issues associated with TP as an alternative summative method for electronically assessing (i.e. e-assessment) the translation students' competence at the end of translator training programme within the context of ODL. Research findings show that TP based on the *project-based approach* that has been practised at UT for the last three semesters as a final-academic-year assessment could in fact increase the student autonomy in learning translation online, apart from exploring online teaching approaches. This is therefore congruous with the notion of OER functions as teaching, learning, and research resources.

TP to some extent also creates “washback effects” on the learning and teaching process of translation through ODL system that is rich in the *task-based approach*. Those didactic aspects of translation (e.g. translation theories, research methods) that are not fully explored in the printed learning materials, which are also available in the digital formats as part of OER (i.e. UT-OER), could be delivered online during the process of writing TP as “compensation”.

To sum up, TP based on a project-based approach proves to be more suitable for those students at a later stages of learning, but the students need to have a strong background not only in translation theories but also in research methods in translation studies. The task-based approach, on the other hand, are suitable for those who are still at the early stages training in which they are normally exposed to controlled translation tasks provided in the printed and digital learning materials at UT. In short, the two approaches (i.e. task-based and project-based approaches) are compatible and complementary in nature, at least from the experience of UT.

The idea of integrating the end of programme translation written examination (i.e. *Tugas Akhir Program/BING4500*) and the research paper (i.e. *Karya Ilmiah BING 4560*) into a single end of programme grade in the upcoming semester (i.e. 2015.1 registration period) seems to be an appropriate academic policy issued by UT policymakers since this is congruous with the project-based approach as part of summative assessment carried out online (i.e. e-assessment). Thus, different sets of marking criteria should therefore be adopted .

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# Correlation analysis on the input and output of scientific research in the Open University of China

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## Abstract

In recent years, with the rise and prosperity of online education, Open University is during its new development period. Scientific research will play an important role in the way of exploring the future development, organizing the new teaching system, education mode, mode of resources construction and technical supporting mode. The input of the scientific research will decide the strength and effect of its development.

To study the issue of the input and output of the scientific research in the Open University of China, the data of the year 2008-2013 is taken as the research object of this essay. The selected research input index is the scientific research funding in the Open University of China. The selected research output index is the number of the papers published by funding supported, the number of the papers quoted and the number of the papers published in core journals and SCI, EI, CSSCI searches. Regression analysis was carried out. The results show that with the scientific research funding is increasing every year, the output of scientific research in the Open University of China has also risen substantially, they have a positive correlation. Less correlation between input of scientific research and high-quality academic papers. In conclusion, The university should increase the research funding to raise the research ability and the output of achievement, and improve the academic status. In the meanwhile, considering the research achievement evaluation system and adjusting the research funding supported target, the university should make the regulatory methods of using research funding and strict supervision of funding to encourage high-quality research output.

**Keywords:** the Open University of China (OUC), research funding, input and output, journal paper, correlation analysis

## 1 Instruction

The Open University of China (OUC) was founded on July 31<sup>st</sup> 2012, which indicated the educational development strategy goal “To found Open University Well” has made important progress. OUC is a new type of university based on information technology. It is very important to do scientific research well for transformation from the Radio and TV University to the Open University of China.

The key for scientific research is the input. In order to explore the achievements and problems of scientific research in OUC, the paper will analyze the input and output

of the scientific research in OUC.

## 2 Idea Support

As an important base of knowledge innovation and talent training, university plays an important role in pushing the development of the scientific technology. The research work of input-output efficiency evaluation has been a focus of public opinion for a long time, which has been also explored and discussed by scholars.

In the study on the status of the input and output of scientific research in China, Yupeng Wang<sup>[1]</sup> (2013) found that there was obvious positive correlation between the numbers of papers published in foreign countries and the funding for basic research, the number of books published on science & technology and basic research and experience research funding had positive correlation, but the number of scientific personnel did not have significant correlation with funding. Jun Yang and others<sup>[2]</sup> (2013) found that the influence of universities' papers was lower than the national average level. This reflected the situation "heavy quantity, light quality" was still prevalent when issuing scientific papers in universities of China. Yang Wu and others<sup>[3]</sup> found the output of the scientific research has positive correlation between R&D funding per person and R&D per capita human. However there was no relationship between the rate of the input of the scientific research and the rate of the output of the scientific research.

In addition, there are another scholars chose to study different subjects. Lifeng Miao<sup>[4]</sup> researched the R&D input-output efficiency in Beijing; found the input-output efficiency of scientific research in R&D institutions is lower than in colleges and universities in Beijing, even less than in enterprises. Gengshu Lu<sup>[5]</sup> and others chose MOE-Administrated universities in China, Yong Liu<sup>[6]</sup> chose colleges and universities in Zhejiang Province, Jiao Li<sup>[7]</sup> chose 28 universities in "211 project" as the objects of study. They all used the Data Envelopment Analysis (DEA) method, and found large differences in the efficiency of scientific research.

This essay will choose OUC as the object of study, in order to reveal the relationship between the input and output of the scientific research in the biggest distance higher education system in China.

## 3 Sample and Method

In order to study the issue of the input-output efficiency of the scientific research in OUC, the essay used the data from the year of 2008-2013. The selected research input index is the scientific research funding in OUC. As paper published is the main achievement of scientific research, the selected research output index is the number of the papers published by funding supported, the number of the papers quoted and the number of the papers published in core journals and SCI, EI, CSSCI searches.

### 3.1 Input data of the Scientific Research

Every two years, faculty and staff in the 44 provincial branches apply for the R&D projects in OUC. After the experts review, the passed projects will get corresponding funding to support their project work, which is exactly the input data in this essay. We can obtain the data from the records of projects in Research Institute and Finance Department in OUC. Further input data overall and in each provincial branch is got statistically.

### 3.2 Output data of the Scientific Research

In accordance with the provisions of OUC research project documents, at least one paper must be published when concluding the project. At present, papers written by faculty and staff in OUC headquarters and branches have been published in journals mainly distributed in mainland China. CNKI almost contains all the academic periodicals issued in mainland China. Therefore, from CNKI papers published under the project name of OUC written by faculty and staff in OUC headquarters and branches can be obtained.

The screenshot shows a search interface with the following elements:

- Top left: 期刊 (Journal) dropdown menu.
- Top right: 期刊导航 (Journal Navigation) link.
- Search tabs: 检索 (Search), 高级检索 (Advanced Search), 专业检索 (Specialized Search), 作者发文检索 (Author Publication Search), 科研基金检索 (Research Fund Search), 句子检索 (Sentence Search), 来源期刊检索 (Source Journal Search).
- Input fields: 输入检索条件 (Input search conditions).
  - Row 1: (基金) (Central Radio and TV University) (或含) (Central Radio and TV University) (模糊)
  - Row 2: (或者) (基金) (国家开放大学) (并含) (模糊)
- Filters: 从 2008 年到 2013 年 (From 2008 to 2013 years). 来源类别 (Source categories):  全部期刊 (All journals),  SCI来源期刊 (SCI source journals),  EI来源期刊 (EI source journals),  核心期刊 (Core journals),  CSSCI.
- Buttons: 检索 (Search), 结果中检索 (Search in results).

Figure 1: Search interface to search papers published supported by OUC

As shown in Figure 1, retrieve field is “fund”, means what kind of fund the paper supported. Search terms are “The Central Radio and TV University”, “CRTVU” and “The Open University of China”, means OUC is the fund source. Retrieval time is the year of 2008-2013, searched on June 21<sup>st</sup> 2014. After screening, the effective results are 429 papers, and the data of published papers by time or units can be analyzed.

## 4 Progress on Research and Discussion

### 4.1 Analysis of OUC Research Input

The scientific research funding as input from OUC accumulated 1714 thousand Yuan from the year of 2008-2013. It can be found the input of the scientific research increased year by year, and the growth rate is larger. The growth rate of the year of 2010-2011 is increased 72% relative to the rate of the year of 2008-2009. The growth



rate of the year of 2012-2013 is increased 72% relative to the rate of the year of 2010-2011.

Table 1: The Data of the Research Funding by Years

The Project Annual	Funding (unit: thousand Yuan)	Growth Rate
2008~2009	236	
2010~2011	407	72%
2012~2013	1071	163%

#### 4.2 Analysis of OUC Research Output

From the year of 2008-2013, the number of published papers supported by OUC fund is 429.

Table 2: The Papers Supported by Years

The Year of Publication	The Number of Supported Papers
2008	10
2009	40
2010	51
2011	106
2012	105
2013	117
Total	429

Line chart as shown in Figure 2 is drawn according to Table 2. As can be seen, supported papers are increasing year by year.

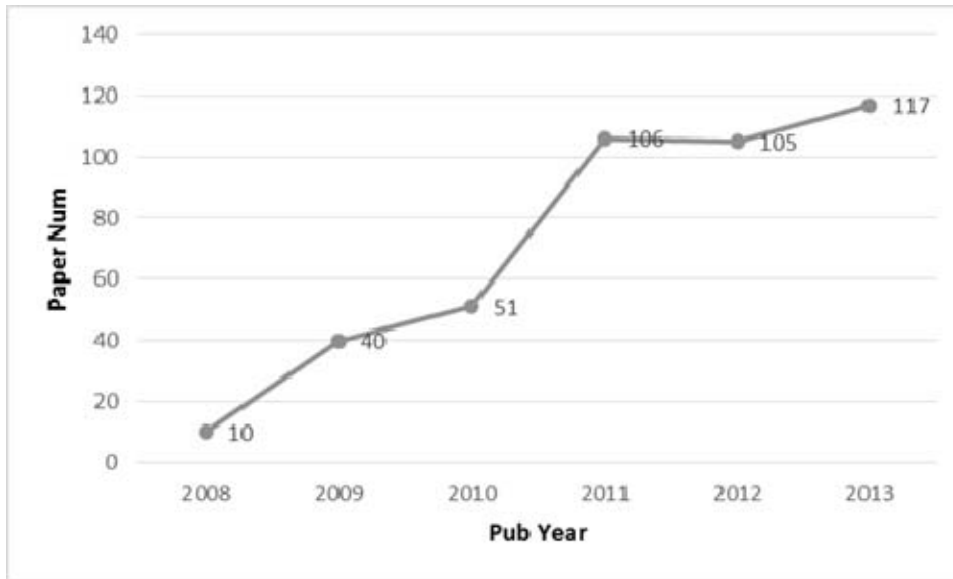


Figure 2: The Supported Papers Distributed by Years

### 4.3 Correlation between the Input and Output of the Scientific Research in OUC

The following is the correlation analysis between the input and output of the scientific research in different years and in different branches.

#### 4.3.1 Relationship between the Input and Output of the Scientific Research in Different Years

The Input-output ratio of scientific research is 0.25 paper/ thousand Yuan, which means one journal paper average need to invest 4 thousand Yuan.

Table 3: Input and output of scientific research comparison table

The Project Annual	Funding (unit: thousand Yuan)	Number of published papers	Input-output ratio (paper/ thousand Yuan)
2008~2009	236	50	0.21
2010~2011	407	157	0.39
2012~2013	1071	222	0.21

Table 3 shows with the raise of the amount of supported funding, the number of supported papers is also increasing.

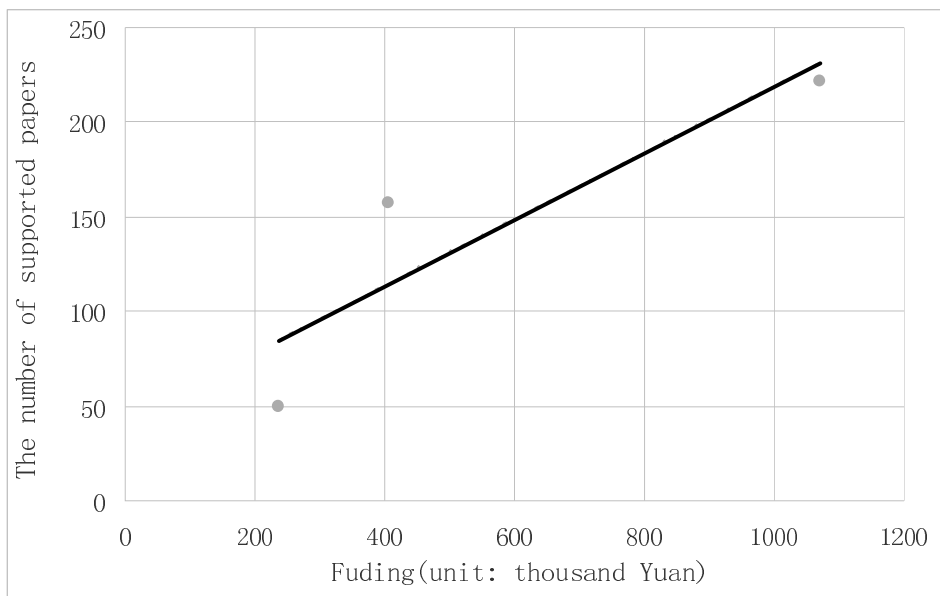


Figure 3: Funding and supported papers scatter diagram

From Figure 3, we can see there is a positive linear correlation with funding and supported papers. It can be identified that the input of the scientific research can bring the output of the scientific research. The more input invest, the more output bring out.

#### 4.3.2 Relationship between Input and Output of Scientific Research in Different Provincial Branches

Because the OUC headquarters is different with branches in function, employee size and the way of research grants, OUC headquarters is not included in the sample pool when analyzing the input-output efficiency by units. Following analyze the relationship between the input and output of the scientific research in different Provincial Branches without headquarters in OUC.

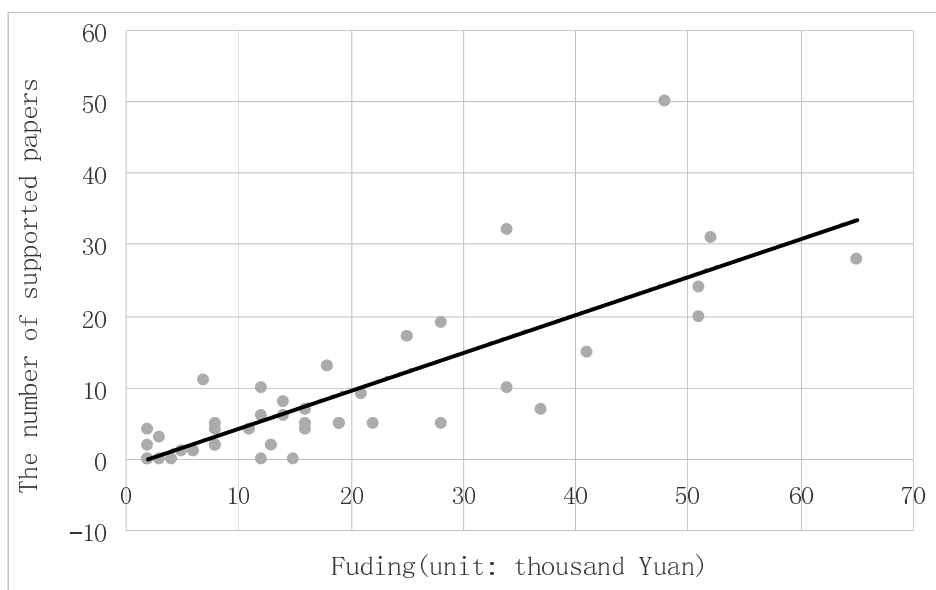


Figure 4: Funding and Supported Papers in Provincial Branches Scatter Diagram

From Figure 4, we can see there is a positive linear correlation with funding and supported papers in different provincial branches. It is first identified that the input of the scientific research of provincial branches can bring the output of the scientific research.

Based on the analysis of Figure 4, further regression analysis was used to explore the linear relation between the funding and the number of supported papers. Formula 1 is a linear regression equation. Y denotes the dependent variable, which is "the number of supported papers". X denotes the dependent variable, which is "funding (unit: thousand Yuan)".

$$y = 5.3217x - 1.1934 \quad \text{Formula 1}$$

$$R^2 = 0.6511$$

Formula 1 indicates that 10 thousand Yuan be invested to the provincial branches can bring 5.32 papers as scientific research output.

#### 4.4 Relationship between Funding and the Number of Contributed Papers

Internationally, the frequency and number of papers cited are important indexes to measure papers' quality and international influence. This means the more times papers be cited, the higher degree of recognition by the international counterparts. Therefore, this essay will make the paper be cited be the contributed paper as one of research output index. By Searching and counting from CNKI, there are 248 papers be cited from 429 papers, the amount number of citation is 743, nearly 3 times be cited by average, the most is 29 times, the least is 1 time.

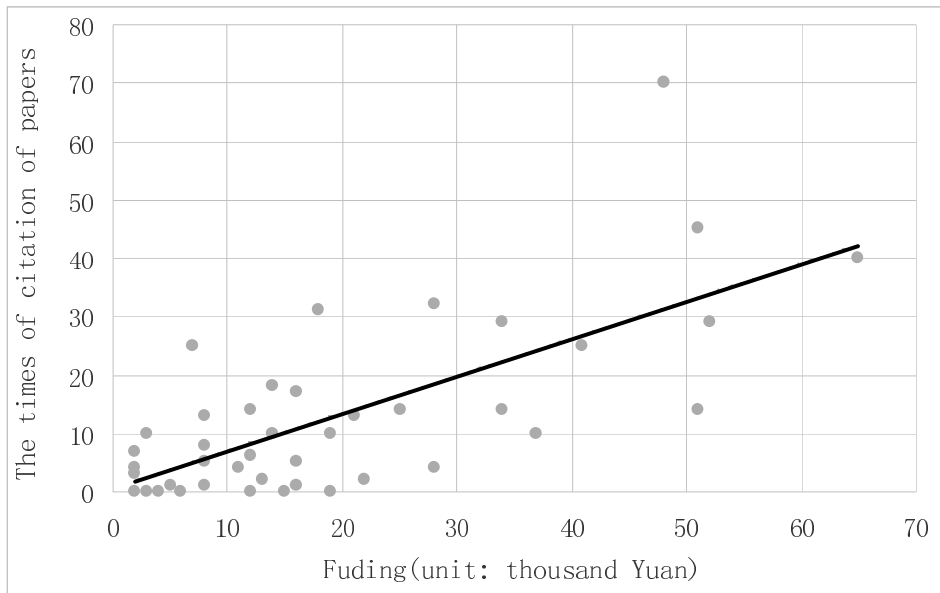


Figure 5: Funding and Times of Citation of Papers in Provincial Branches Scatter Diagram

From Figure 5, we can see there is a positive linear correlation with funding and the times of citation of papers in different provincial branches. It is first identified that input of scientific research of provincial branches can bring more times of citation of papers.

Based on the analysis of Figure 5, further regression analysis was used to explore the linear relation between the funding and the times of citation of papers. A linear regression equation is shown in Formula 2. Y denotes the dependent variable, which is "the times of citation of papers ". X denotes the dependent variable, which is "funding (unit: thousand Yuan)".

$$y = 6.4146x + 0.3604 \quad \text{Formula 2}$$

$$R^2 = 0.4929$$

Formula 2 indicates that funding has much influence on the times of citation of papers. It shows 10 thousand Yuan be invested to the provincial branches can bring 6.42 times of citation of papers.

Continue to analyze the relationship between funding and the number of cited papers, shown as Figure 6.

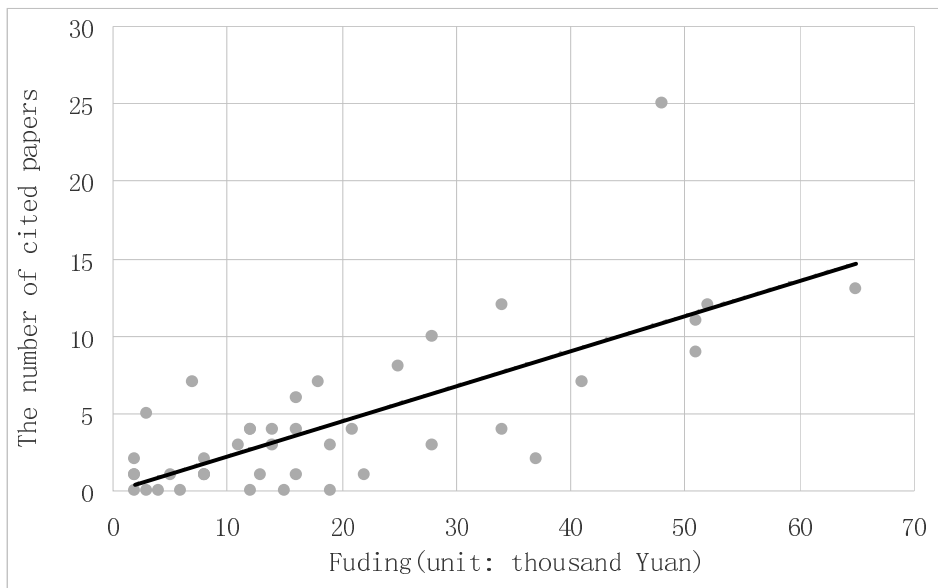


Figure 6: Funding and Times of cited Papers in Provincial Branches Scatter Diagram

From Figure 6, we can see there is a positive linear correlation with funding and the number of cited papers in different provincial branches. It is first identified that input of scientific research of provincial branches can bring more cited papers.

Based on the analysis of Figure 6, further regression analysis was used to explore the linear relation between the funding and the number of cited papers. A linear regression equation is shown in Formula 3. Y denotes the dependent variable, which is "the number of cited papers ". X denotes the dependent variable, which is "funding (unit: thousand Yuan)".

$$y = 2.2642x - 0.0203 \quad \text{Formula 3}$$

$$R^2 = 0.5466$$

Formula 3 indicates that funding has some influence on the number of cited papers, However, the coefficient is less than the influence on the total supported papers. It shows 10 thousand Yuan be invested to the provincial branches can bring 2.26 cited papers. The reason is a paper can be cited not only rely on funding supported, but also related to the quality and thesis of the paper and other reasons.

#### 4.5 Relationship between Funding and the Number of High-quality Papers

A paper can be adopted by core journals and enter the international CSSCI, EI, SCI three searches show that it has high value for study. Therefore, this essay will make this kind of paper high-quality paper. From the year

2008-2013, there is 123 papers adopted by core journals and enter the international CSSCI, EI, SCI three searches in OUC provincial branches .

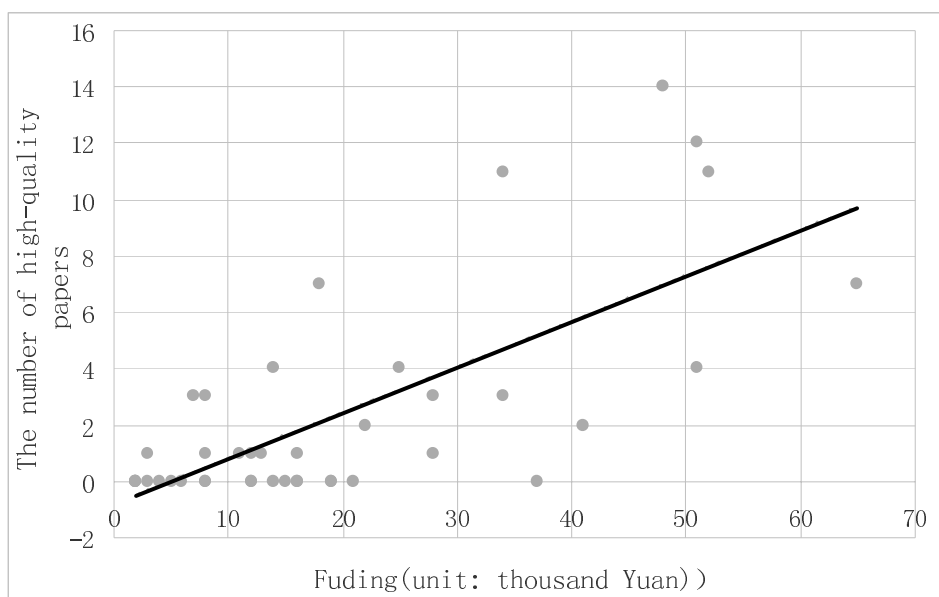


Figure 7: Relationship between funding and the number of high-quality papers in provincial branches

From Figure 7, we can see there is a positive linear correlation with funding and the number of high-quality papers in different provincial branches. It is first identified that input of scientific research of provincial branches can bring more number of high-quality papers.

Based on the analysis of Figure 7, further regression analysis was used to explore the linear relation between the funding and the number of high-quality papers. A linear regression equation is shown in Formula 4. Y denotes the dependent variable, which is "the number of high-quality papers ". X denotes the dependent variable, which is "funding (unit: thousand Yuan)".

$$y = 1.6167x - 0.8161 \quad \text{Formula 4}$$

$$R^2 = 0.5079$$

Formula 4 indicates that funding has influence on the number of high-quality papers, but less. It shows 10 thousand Yuan be invested to the provincial branches can bring 1.62 high-quality papers.

The reason is high-quality paper is related to the level of the paper and project, the higher level of project, the more and stricter requirements will be asked for. In general, college project requires only one paper published when concluding, not

required published in core journals. Therefore the sample papers in this essay are less published in core journals, even not published in foreign journals.

#### **4.6 Some Funding has not Brought any Output**

Although the above results appear that there is positive relationship between the input and output of the scientific research, sponsors had better be aware that some funding has not brought any output. There are 6 provincial branches supported have not brought any output. Over the past 6 years, a total of 400 people (Times) was funded, but only 161 people (Times) published papers, less than 50% of the total number of people (Times) supported. The sponsors need pay more attention on this problem.

### **5 Shortcomings, Conclusion and Suggestion**

Because the source of acquiring the data in this research is limited, only funding is collected as research input index. In the future, research personnel and other data will be added to be research input index through investigation or other ways. In addition the funding amount is small from college project per each, the requirements are relatively low, and so the output is less. In the future research, the range of the study will expand to all projects including special subject etc. Then book published, patent, awards and other data can be used as research output index, which will make the finding more fully.

To be sure, OUC has made great efforts in scientific research, and has got much achievement. The above research results show that the research funding has very important effect on the output of the scientific research. In order to achieve more scientific research output, improve OUC's academic status, OUC should increase the scientific research support and input. At the same time, researchers need to be encouraged to participate in the research work inside and outside the school, especially the major research projects, try to get more funding for improving the research level and work efficiency.

It is also found that input in research funding has little effect on the contributed papers and high-quality papers. This means only increasing the input of funding is not enough to motivate more high level achievement of scientific research. It is necessary to create a good environment for scientific research, encourage innovation and exploration; to formulate regulatory methods of using research funding and the research achievement evaluation system; to develop strict supervision of funding; to adjust the research funding supported target, encourage scientific research units who did good job, and actively support the relatively follow-up units, strengthen communication and exchanges among the scientific research units.



In conclusion, under OUC's support and guidance, healthy research system and environment will further strengthen the ability and level of scientific research in OUC, and make more contribute to the ODL.

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# **Social network analysis of the research relationships among faculty members of the UP Open University**

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Open and Distance e-Learning programs offered by open universities have opened up opportunities for students to be flexible with when and where they study. This same freedom that allows students to be mobile and ubiquitous allows the faculty to be mobile and ubiquitous as well. With a lot of courses not having real-time face-to-face classes, as well as the prevalence of modern communication technologies, there is little need for faculty members to physically convene at the same place and time in order to do most of their work. At the UP Open University, the faculty members have the option to report to one of the campuses and learning centers. This kind of setup also results in a different type of research environment. Additionally, while this setup is effective for teaching, meaningful relationships between faculty members may be limited due to the lack of interaction. Potential collaborations may remain untapped, opportunities for grants and fellowships may be missed because of this. This study attempts to map out relationships among faculty members (using network visualization tools such as Gephi) based on their research interests, previous collaborations, and the people with whom they frequently communicate. Using the map, the current state of research culture in the University is analysed and possible research collaborations are identified. The analysis aims to find existing research communities, identify central figures, and determine the level of connectedness of the faculty network and their implications in the University research culture. This will help University administrators, as well as faculty members and other constituents in making decisions that will further foster research in the University.

Keywords: Social Network Analysis, Research Culture, Research Groups, Collaborations

## Introduction

It is the responsibility of every university, including open universities, to contribute to the body of knowledge through research. Open Universities have been differentiated from regular universities through concepts such as openness, or the use of distance learning methods, both of which refer to the teaching and learning aspect of the University. The research aspects of open universities have been left unexamined.

This rings even more true in the Philippine setting, wherein most Universities and Higher education institutions are focused on their teaching functions, remaining weak when it comes to research. Also, individual research strongly outnumber collaborative and institutional research in the country, with 72% of research carried out

by individuals (Salazar-Clemeña & Almonte-Acosta, 2007). This shows a certain gap when it comes to the research collaborations and relationships in the country.

Evidence suggests that collaboration increases research productivity, and that researchers enter collaborative relationships based on operational rather than organizational or strategic reasons. The effect of collaboration on productivity is also affected by the researcher's geographical closeness to their collaborators (Landry & Godin, 1996). In the context of open universities, particularly distance e-learning institutions wherein the faculty members are mobile and ubiquitous, and having physical research laboratories with student involvement isn't feasible, it is interesting to examine how a vibrant research culture can be developed and nurtured.

In this paper, social network analysis of the research collaborations of the full-time faculty members of the UP Open University (UPOU) is conducted with the aim to get a general perspective of the research culture in this particular open and distance e-learning institution.

## Background

UPOU is a pioneer of Open Distance and e-Learning in the Philippines. The university employs full-time faculty members, affiliates faculty from other constituent universities, lecturers across multiple learning centers across the country. Faculty members divide time among teaching, administrative, extension and research duties.

Three faculties of study comprise UPOU namely Faculty of Management and Development Studies (FMDS), Faculty of Education (FEEd), and Faculty of Information and Communication Studies (FICS). FMDS has the largest population in terms of full-time faculty members, with a total of 12, followed by FEEd with 9, and FICS with 8.

UPOU has its headquarters in Los Banos, Laguna. It also has an office in Diliman, Quezon City. There are also several learning centers around the country. A faculty member has the option to report to one of these offices or learning center.

## Methodology

A survey was conducted among the full-time faculty members of UPOU. The survey form was created on Google Forms and was distributed through email. The form asks the following questions

1. Which office do you most frequently report to?
2. Who do you most regularly/frequently correspond with/talk to among the UPOU Faculty?
3. Who among the UPOU faculty have you done research/currently do research with?
4. Who among the UPOU faculty would you like to do research with?

Each faculty member represents a node with two attributes. First attribute is the Faculty of Study he/she is connected with, and second attribute is the office or learning center he/she reports to.

Adjacency matrices were then created from the responses to the survey questions, with each faculty as a node and the names mentioned as its edges. The edges for the responses to questions #2 and #4 in the survey are directed, while the edges for #3 are undirected.

Social network maps were generated using the software Gephi. The nodes on the map were repositioned using Force Atlas 2 algorithm. Nodes were colored based on their attributes; namely the Faculty of Study under which they belong to, and Office/Learning Center they to which they most frequently report. The size of the nodes indicates their centrality.

In order to find research groups, a method in social network analysis called community detection or clique finding would be employed. A clique is defined as a strongly connected group of nodes in a map. Strictly, a clique is a subset of a graph in which all the nodes are connected to each other. However since definition is a bit rigid for the purposes of finding research groups, other more relaxed clique-finding algorithms were used. For this particular study, the method used is Louvain's Method. Cliques with at least 3 and members are counted as a research group.

## Results and Discussion

Twenty out of 29 of the full-time faculty members of UPOU participated in the survey. Their responses were be mapped accordingly. Ideally, responses from all UPOU faculty members should be gathered, but as it proved to be difficult despite multiple attempts to communicate, the study had to settle using only these responses. Faculty members who did not respond were still included in the maps. However they have an outdegree of zero.

For this paper, the nodes are unlabeled in the map, and can only be identified through their attributes. This is in order to protect the privacy and anonymity of the respondents.

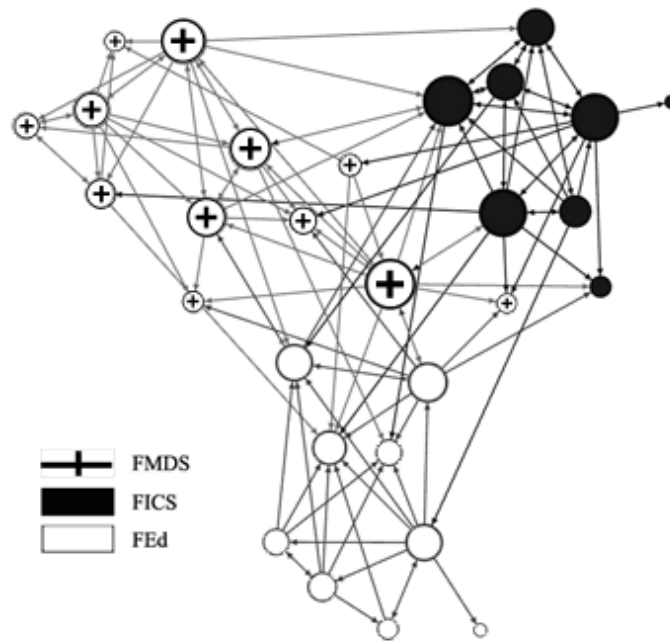


Figure 1. Who talks to whom, with Centrality

The faculty members of UPOU were asked the question “Who do you most regularly/frequently correspond with/talk to among the UPOU Faculty?” Based on their responses, it is clear that the faculty members of UPOU correspond mostly with their colleagues from the same faculty of study. Figure 1 show this quite clearly.

The degree of each node is measured for centrality. We can see that there is no single most central node that stands out in the network; however each faculty of study have their own central nodes.

This network establishes the communication path within the university. Not only are collaborations possibly determined by “who talks to whom”, information such as grants, awards and call for papers also travel first through a predicted path. This network, therefore, is relevant to the analysis of the birds-eye perspective of the research culture in the University.

When it comes to the question “Who among the UPOU faculty have you done research/currently do research with?”, it is important to note that doing research does not necessarily only pertain to co-authorships. People who worked on a project for a large part of its duration, the person who are responsible for a key step (original idea/hypothesis), people responsible for one or more of the main elements of the research, and the person who initially proposed and gained funding for a project can all be considered as collaborators (Katz & Martin, 1995).

The maps for Previous and Present Collaborations are filtered to only include those have done research with another faculty member. Nodes that are not connected to

the network are excluded from the analysis. The map also shows nodes as undirected, since the concept of doing and having done research together is mutual.

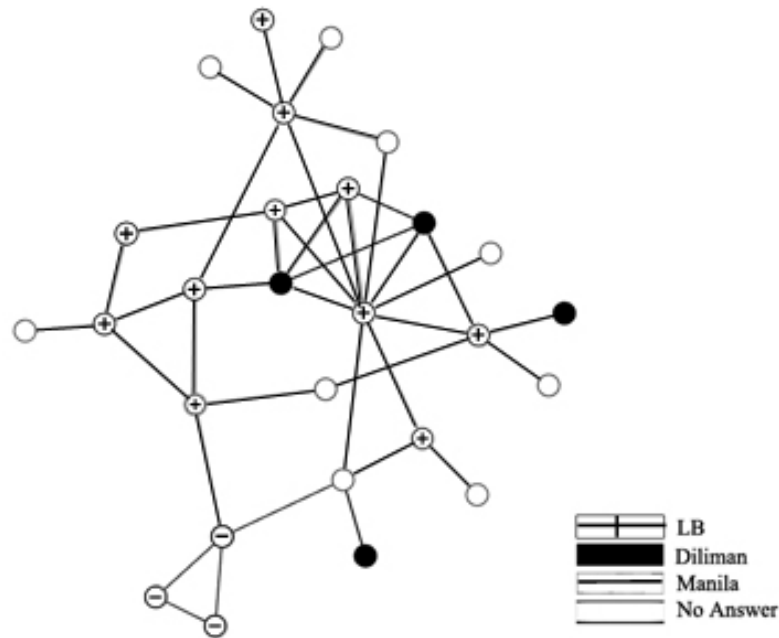


Figure 2. Previous/Present Collaborations and Office/Learning Center

Figure 2 shows the map for the question “Who among the UPOU faculty have you done research/currently do research with?” partitioned by color according to the office or learning center they report to. This shows that due to the majority of Faculty members coming from the Los Banos headquarters, it is difficult to determine whether or not office reported to is important to research.

One interesting point to note though is how the faculty members who report to Manila learning center has formed a triad (clique of size 3), as seen in the triangle at the bottom-left part of the map. Even without running any community-detection algorithm, it is obvious that the faculty members from Manila already conduct research together and can be considered as a research group.

This is the only instance which resulted in an interesting finding based on Office/Learning Center.

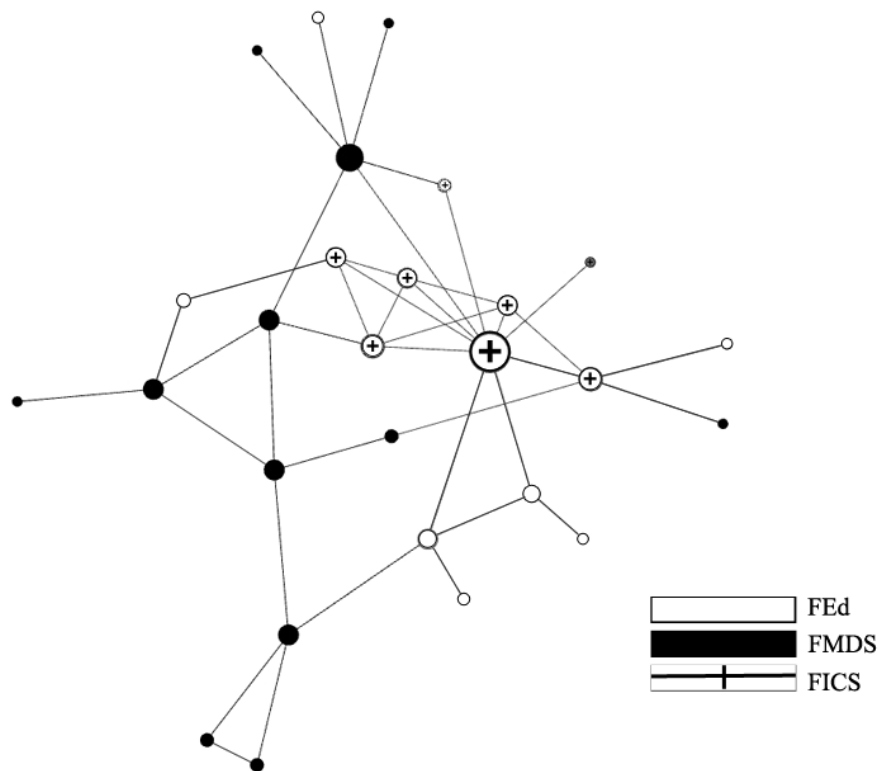


Figure 3. Previous/Present Collaborations and Faculty of Study, with Centrality

In Figure 3 we show the same previous/present collaborations, but this time partitioned according to Faculty of Study, with additional Centrality values. Compared to partitioning by Office/Learning Center, the partition by Faculty of Study is more meaningful. We can see that FICS members do a lot of research together, while FEd members collaborate more with members from other faculties of study.

In terms of centrality, as measured by degree or the total number of nodes. The most central person when it comes to previous and present research collaborations is from FICS, with all members of the faculty of study having done research with this person, and some from other faculties of study doing research with him/her as well.

When it comes to the structure of the map, it is not quite as clear-cut as the ones in Figure 1. There are more existing collaborations outside the Faculty of Study and Office/Learning center, and it is not always the same people doing research together.

Aside from previous and present collaborations, the study also aims to determine prospective collaborations and research groups. This is key in learning about the state of research in the university in the coming months or years.

This data is gathered from the responses to the question “Who among the UPOU faculty would you like to do research with?” As with the previous and present collaborations, the map was filtered to include only nodes which are connected to the network.

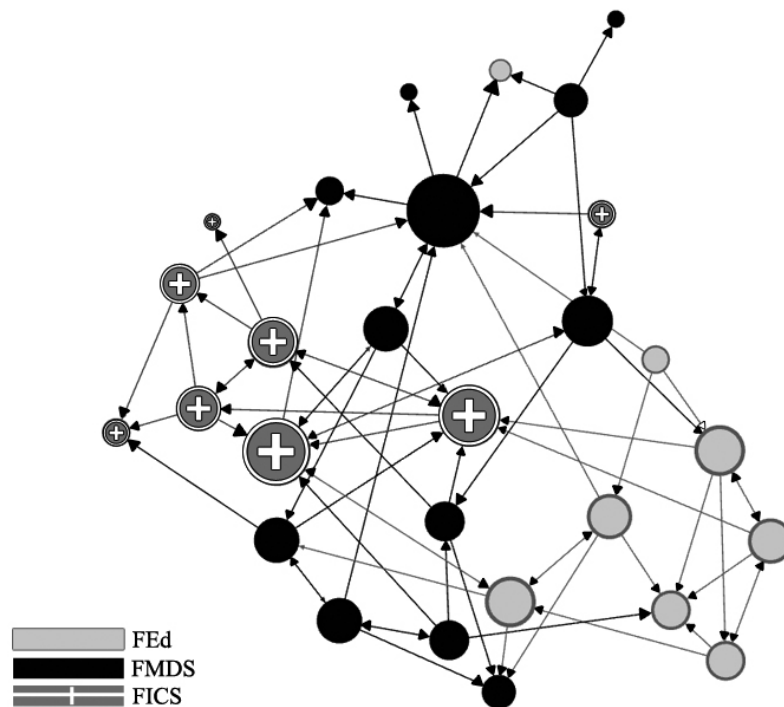


Figure 3. Future Collaborations and Faculty of Study, with Indegree Centrality

In Figure 3, we can see the future state of research in UPOU based on the full-time faculty members' response to the question "Who among the UPOU faculty would you like to do research with?" Similar to the "Who talks to whom" map in Figure 1, we can see that they would like to do research with their colleagues in the same Faculty of Study, with FMDS having the most number of edges to other Faculties of Study.

The key person or central figure in the map is from FMDS with an in-degree of 7, followed by two from FICS with in-degree of 6 each. It is interesting to note that the two of the three most central nodes in this network, the faculty members chosen to work with by their peers, were also the top two nodes with the highest centrality in Figure 1.

In order to get an idea of the type of collaborations in the university, we apply community finding algorithm to the networks. Gephi's Modularity Statistic was used to partition the network. This is based on Louvain's Modularity Method.

The community finding done through Gephi was overlaid on the generated maps, as opposed to partitioning the map by modularity. This is to show comparison, and to keep the attribute of Faculty while still showing the clusters.



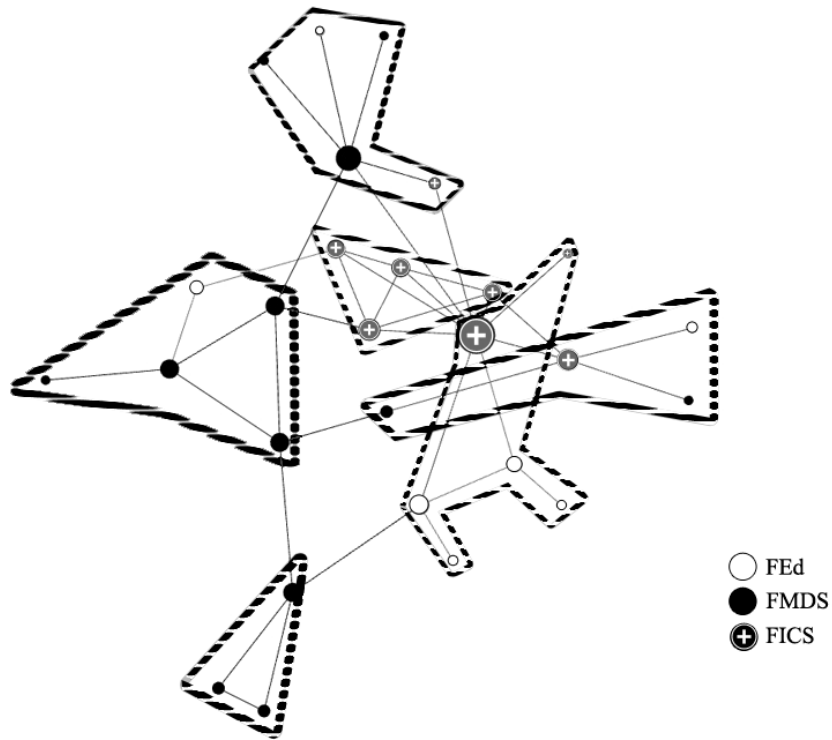


Figure 4. Past and Present Research Groups

Based on who the full-time faculty members of UPOU have worked with or are currently working with, Gephi was able to identify six research groups. Two of these research groups have the ideal number of five members, while the other communities have 3-6 members. Two of the research groups are composed of members within the same Faculty of Study, while the rest have mixed members.

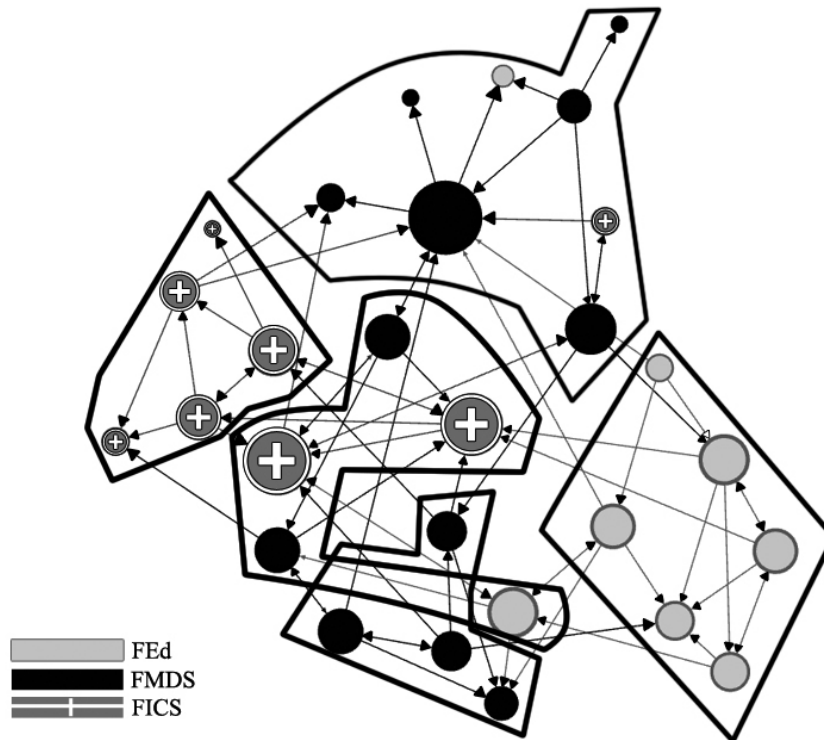


Figure 5. Future Research Groups

Gephi's Modularity statistic, which uses Louvain's Algorithm, was able to find 5 research groups within the network. Two of these communities have the ideal number of members, which is 5, while the other groups have 4, 6 or 7 members.

Three of the 5 groups are composed of members coming from the same Faculty of Study, while the other two have members from all Faculties of Study.

#### Summary, Conclusion and Recommendations

Results show that the faculty of study under which a faculty member belongs to is more relevant to his relationships than the office or learning center he/she reports to. It can be said that the ubiquity of professors in the Open University does not matter much when it comes to conducting research. However, the bulk of their communication and collaborations are limited within their faculty of study. This can be expected since it is more likely that colleagues would have similar research interest, but this also shows that there might be an opportunity to explore cross-faculty collaborations for interdisciplinary research.

Within the University, the faculty members identified as key persons/central figures in the network should be encouraged to pursue research initiatives. This might encourage the other faculty members to collaborate and conduct research as well, hence increasing overall research productivity.

The identified research groups could be analyzed further based on the attributes and characteristics of the members in order to find out the type of research they can produce.

Eventually, the study could be expanded to include other constituents of the university, such as affiliate faculty, researchers and administrators. This would generate a bigger network, and a more comprehensive view of the researcher relationships in the university.

Other open universities are encouraged to adapt the methodology of this paper and conduct a similar study among their faculty. A relationship study within and among faculty members of different open universities might be an interesting network to analyze.

Using Social Network Analysis on the relationships of researchers in an organization can definitely yield interesting results. Some may be an affirmation of present ideas, but it can also help in identifying strengths and weaknesses, and opportunities in the research environment. This can definitely aid in the decision-making process involved in nurturing a research culture.

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# **Enhancing research on public management through open and distance e-learning**

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## Abstract

When Typhoon Haiyan hit the Philippines on November 2013, various sectors of the society, locally and internationally provided immediate relief and assistance to those who were affected by the disaster. An overwhelming outpouring of support came from Filipinos and from the international community. The Filipinos are known to be charitable people; with the Philippines ranked as 16th out of 135 countries in the World Giving Index (WGI) 2013. The Philippines recognizes the value of voluntarism in the country and is considered to be a contributing force in overall social and economic development in the Philippines.

Students of the Master of Public Management Program (MPM) of the University of the Philippine Open University (UPOU) are located in various parts of the country and the world, hence, it was initially out of “curiosity” of how the super typhoon affected them which led to further research on public management, specifically in the field of voluntary sector management.

This paper will attempt to answer the research question: “How can e-learning enhance researches on public management? Specifically, the papers aims to: a) provide a brief description on the MPM program and its students; b) describe the online tool as a mechanism for data gathering; c) discuss experiences of the students with Typhoon Haiyan which the students shared; d) present how student participation in online discussion contributed further to the concept of voluntarism in the Philippines; and e) present other opportunities for researches in public management using e-learning.

The paper reveals that there are four types of responses that came from the students: a) those that were affected by the typhoon including their families; b) those who donated directly to the victims of the typhoon; c) those who solicited donations; and d) those who expressed their sympathies.

The paper concludes that researches could be enhanced through open and distance e-learning. Moreover, it is affirmed that online students are indeed co-creators of knowledge. There are also more prospects for researches, especially that e-governance has become one of the areas of public management.

## Keywords

E-learning and Research in Public Management

## Introduction

When Typhoon Haiyan hit the Philippines on November 2013, various sectors of the society, locally and internationally provided immediate relief and assistance to those who were affected by the disaster. An overwhelming outpouring of support came from Filipinos and from the international community. The Filipinos are known to be charitable people; with the Philippines ranked as 16th out of 135 countries in the World Giving Index (WGI) 2013. The Philippines recognizes the value of voluntarism in the country and is considered to be a contributing force in overall social and economic development in the Philippines.

Students of the Master of Public Management Program (MPM) of the University of the Philippine Open University (UPOU) are located in various parts of the country and the world, hence, it was initially out of “curiosity” of how the super typhoon affected them which led to further research on public management, specifically in the field of voluntary sector management.

## Objectives

This paper will attempt to answer the research question: “How can e-learning enhance researches on public management? Specifically, the papers aims to: a) provide a brief description on the MPM program and its students; b) describe the online tool as a mechanism for data gathering; c) discuss experiences of the students with Typhoon Haiyan which the students shared; d) present how student participation in online discussion contributed further to the concept of voluntarism in the Philippines; and e) present other opportunities for researches in public management using e-learning.

## Methodology

The paper utilized online reports and articles on the various concepts and definitions of voluntarism. It also used primary information from graduate students enrolled at the UPOU based on what they have written in the forum in their online courses at the Master of Public Management Program. Permission for the use of their answers and photos were sought from the students.

## Results of the study

### *1. Brief description on the MPM program and its students*

On February 1995, the University of the Philippines Open University (UPOU) was created to provide distance education in the country. It offers formal as well as non-formal courses. At present, the UPOU has 10 Learning Centers and 19 Testing Centers across the country. As regards offshore students, there are students coming from 42 countries.

The UPOU started offering the Master of Public Management (MPM) program in 1998 which was designed for policy makers, administrators, and managers of public, private, and nongovernment organizations; practitioners in local government and administration; and other individuals interested in good governance, public policy and administration.

It aims to provide a high level of competence in public policy, governance, and administration. It also prepares students to become better public managers, administrators, workers and/or advocates of social change, administrative reform and national development. A student can choose any specialization such as: Public Policy, Local Government and Voluntary Sector Management.

During the early years of the programs, face to face meetings were conducted once a month in order to enable interaction between tutors and students. The course materials were based printed manuals that the students pick up from their respective Learning Centers or have the materials delivered through courier services.

In 2001, the UPOU went online through the Integrated Virtual Learning Environment (IVLE) which was developed by the University of Singapore. It was on June 2007 that the UPOU decided to utilize MOODLE as a Learning Management System (LMS) which was later referred to as “MyPortal.”

The MPM has attracted a lot of students and as of 2013, it had 242 enrollees.

### *2. The online tools as mechanism for data gathering*

The “MyPortal,” is the virtual classroom of the UPOU and it is where the faculty members and students interact with each other. It has the features such as discussion forum, chat, wikis, among others. The course modules are uploaded in the course sites including other materials and links to websites. The availability of open educational resources further enhanced the materials that are provided to the students.

The students are exposed to both synchronous and asynchronous communication. The discussion forum is being used to share ideas as well as experiences on good governance. Since the students are all separated by distance, the discussion allows the

students to write and also upload photos or even documents that they might find relevant to the subject matter.

When Typhoon Haiyan hit the Philippines in November 2013, the semester just started. It slammed through the Visayas region with sustained winds of up to 315 km/h. It has been considered as the strongest storm ever recorded at landfall and one of the deadliest and most destructive ever to hit the Philippines (wikipedia.org, Burt 2013). Over a 16 hour period, it directly swept through six provinces, leaving behind a trail of destruction. Its onslaught affected around 16 million people with more than 4 million displaced and caused 6,300 confirmed fatalities with more than 1,700 missing (NDRRMC 17 April 2014, CRS 2014). Typhoon Haiyan left a total of USD 2 Billion worth of damages (NDRRMC 17 April 2014).

One of the important questions that is relevant during that time was to ask how the students were affected by the typhoon and they were asked to freely post their experiences and also photos.

The question in the discussion forum triggered a lot of contribution from the students which can be summarized in the next part of the paper.

### 3. *Experiences of the MPM students with the typhoon haiyan*

The main question that was posted in the forum was: “What are your experiences with Typhoon Haiyan and include some photos as well.” The responses can be categorized into four, namely:

- Students who were affected by the typhoon including their families;
- Students who donated directly to the victims of the typhoon; and
- Students who solicited donations; and
- Students who expressed their sympathies.

#### a) Students who were affected by the typhoon including their families

About 11 students claimed to have been affected by the typhoon including one student whose house was completely devastated. It prompted them to leave the disaster area and moved to the capital, Manila. For other students, the situation was not very serious and they were able to help each other in their respective communities to clean up their surroundings with all the debris from the storm. One student also claimed that their village chief visited them the day before the typhoon and reminded them to get ready for it. It could be noted that the students also sent assistance to their families as soon as it was possible for them. Photos of how the devastation hit their areas were also posted in the forum.

b) Students who donated directly to the typhoon victims

For those who were not directly hit by the typhoon, it can be gleaned from the responses that the assistance came in various forms. The most common form of donation was in cash. The cash primarily came from the student's salaries and bonuses. One student said that they had to give up their "Christmas Party" so they could give it to the victims. One student mentioned of buying products (e.g. t-shirts) with the end goal of donating a percentage of their profit to those who were affected.

The other form of voluntarism that was evident is the giving of time and service. Some of the students gave their time and service by going to institutions that need help in repacking of relief items, while one student volunteered to meet evacuees and bring them to their preferred destination in Manila. One contributor mentioned that he coordinated with the boat that would bring the relief goods to their destination.

One student also said that their local church organized prayers and petitions for the victims. The donations were mostly coursed through the media and the church of through the local government units and local offices of agencies.

c) Students who solicited donations

Aside from the direct contribution, other students even went as far as organizing fund drives both locally and abroad. For those students who are based in the Philippines, they collected bottled water, canned goods and other donations and sent them through their personal contacts in the disaster zone. Some also collected donations and sent them through non-government organizations, through the local governments and even the church. One student even joined a fund raising called "one peso" movement which was organized to raise funds for the victims.

There were also three students who were based abroad, specifically in the United Arab Emirates and Japan. One student said that he helped solicit donations in Japan which was given to the Philippine Red Cross. Another student was designated as the "Ambassador" for the fund drive in their company in Dubai where they tried to pool money to be sent to the victims. Another student met with his townmates through their association and mobilized their members to contribute to those who were affected by the typhoon. They also helped the Philippine Consulate Office in Dubai to mobilize resources to be sent back to the Philippines.

d) Students who expressed their sympathies

There were three foreign students from Africa in the class and they have expressed their sympathies to their classmates who were victims of the typhoon and also to the Philippines in general.



#### 4. *Enhancing public management research through online discussion*

Based on the contribution of the students, they were categorized and put together under the concept of Voluntarism which is an area in public administration.

The Philippines recognizes the value of voluntarism in the country and is considered to be a contributing force in overall social and economic development in the Philippines. In fact, in 2000, volunteers rendered an estimated 312.3 million hours of volunteer service and in 2009, the total value of volunteer work reached an estimated USD 1 billion, from around USD 450 million in 2000 (Virola, 2010).

In spite of the growing significance of voluntarism and the recognition of such and the notion of Voluntarism as a part of Filipino culture and tradition, measuring volunteer work has been difficult.

Republic Act No. 9418, known as the Volunteer Act of 2007 defines voluntarism as “an act involving a wide range of activities, including traditional forms of mutual aid and developmental interventions that provides an enabling and empowering environment both on the part of the beneficiary receiving, and the volunteer rendering the act, undertaken for reasons arising from socio-developmental, business or corporate orientation, commitment or conviction for the attainment of the public good and where monetary and other incentives or reward are not the primary motivating factors.”

Virola (2010) further defines voluntarism as “an expression of people’s willingness and capacity to freely help others and improve their society.” In the Philippines, voluntarism can be understood through several indigenous meanings which are often considered as part of Filipino values but basically it refers to the concept of “sharing.” (PNVSCA 2012).

Voluntarism is “an expression of people’s willingness and capacity to freely help others and improve their society” (Virola et al. 2010). It is translated in different ways in various cultures, but at the heart of it is a tradition of sharing. Indeed in the Philippine historical and cultural context, the notion of voluntarism evolved from this tradition. The concept of Filipino voluntarism can be understood through several indigenous meanings which are often considered as part of Filipino values (PNVSCA 2012).

Bayanihan is possibly the closest indigenous translation of voluntarism. Indeed in the Country Report on the State of Voluntarism in the Philippines 2001-2011, bayanihan is translated directly as voluntarism (PNVSCA 2012: 5). The Country Report explains that the term stems from two Filipino words: bayani, which means “hero or heroine;” and “bayan”, which means “nation, town, or community.” By merging the essence of both words one would get bayanihan, which means “a sense of community.” “Bayanihan signifies a communal spirit that enables completion of tasks through the power of unity and cooperation. It expresses as well the importance of being heroes to one another for the common good” (PNVSCA 2012: 5). However, in Virola et al. (2010), bayanihan is

not unconditionally equated to Voluntarism; instead it is only one of the indigenous meanings of voluntarism which refers to “mutual assistance and self-help among equals”.

Interestingly, according to Cariño (2002) and Fernan (2002), forms of Filipino voluntarism may also involve such activities as “praying for someone” and “lending money without interest.” This is interesting because these activities are not considered volunteering in the Western sense. It is suggested that these activities may be a result of the Filipino conception of volunteering as “an act that involves actually helping out someone in need rather than being merely the generic manifestation of an inner compulsion to be charitable” (Fernan 2002: 5). For Fernan, Voluntarism is “the giving of time, service or talent to someone other than a member of one’s household or some organization without consideration of money or kind” (quoted in Virola et al. 2010: 16). Meanwhile, for Aguilin-Dalisay et al., Filipino Voluntarism means “helping someone out of absolute free will or without compulsion to help and without consideration of any remuneration of anything in exchange” (Aguiling-Dalisay et al. 2004 quoted in Virola et al. 2010: 16).

## Conclusion

Based on the experiences of the MPM students, the paper entitled: “Volunteering and Networking in the Time of Crisis: Experiences and Lessons from the Philippines” was written and presented during the “2014 World Conference for Public Administration” held in Daegu, Korea, organized by Korean Association for Public Administration. The study has affirmed further the theories on voluntarism in the Philippines.

Disasters similar to Typhoon Haiyan could be experienced once in a lifetime. Hence, it was very important that online students have contributed their experiences and were documented in order to contribute to the discipline of public management. This was made possible due to Indeed, they continue to be co-creators of knowledge.

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# **Fostering an institutional research culture: A case study from the OUM Business School**

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Malaysia's quest for achieving the status of a developed nation and increasing competition in the workforce has spurred working adults to enrol in higher learning institutions. Due to work and time constraints, most of these workers have chosen to opt for open and distance learning where they can engage in their studies while continuing to work at the same time. Open University Malaysia, as the leading ODL institution in the country, strives to fulfil its learners' expectations while at the same time trying to forge ahead with limitations in terms of workforce, technological changes and increased competition faced by most ODL institutions. Taking these limitations in mind and realising that its future sustainability lies in its core competencies, OUM Business School (OUMBS) has undertaken a massive move to build these competencies as part of their institutional capability. Generally, institutional capability is often taken for granted especially in universities where the members of faculty are already holding Masters or PhD degrees. However, with increased competition amongst universities, developing institutional capability becomes not only important but essential and integral to achieving competitive advantage. Bearing this in mind, OUMBS has embarked on a journey towards building staff competencies in a structured but enjoyable way, the objective of which is to foster continuous improvement amongst all levels of staff. This paper gives an overview of OUM Business School's strategies to foster an institutional research culture amongst its team members, outlining the objectives of the endeavour, the strategies planned and the results obtained after one year of implementation. It is qualitative in nature based on a single case study. The results show that the initial success achieved will grow multifold in the future, resulting in improved research performance amongst the academic staff, increased knowledge and continuous learning amongst the support staff and increased learning amongst learners as a result of improved institutional capability in the university itself.

Keywords: Research Culture, Teamwork, Leadership, Institutional Capability

## **Background of the Study**

According to Calderon & Mathies (2013), the upcoming challenge over the next two decades for higher learning institutions globally is how to respond to societal needs such as accountability demands and institutional research. To function effectively and efficiently, all institutions need to promote sound institutional research. Having established the usefulness of institutional research, it could be concluded from the study of Leimer (2009) that institutional research can help foster a broad organisational view among campus constituents, connect people, facilitate collaboration and encourage organisational wisdom that is also associated with cultural transformation. Previous studies (Bosch & Taylor, 2011; Kondra & Hurst, 2008; Leimer, 2009; Plymouth, 2003)

have studied the association between organisational culture and institutional research. Nonetheless, existing research has offered limited insights on this area of interest especially with reference to open and distance learning. There are two motivations for this study. Firstly, within the context of this paper, the theoretical gap of Hachtmann (2012) provides an opportunity for further research. The findings from his study which focused on the substantive level theory can only be generalised to the subjects of his study and not to the broad population due to the purposeful theoretical sampling frame. Therefore, the findings from this study could add value to the literature as a whole. Secondly, taking a broader view, this study has also heard the call of Leimer (2007) who clearly implied the directions for future research in narrowing the literature gaps. Organisational learning which can be fostered through culture of a university is observed as path to the future. This can be achieved through having effective institutional research qualities. Thus, studies like this present one should focus on addressing the abovementioned issues.

### **Problem Statement**

Although the problems surrounding the academic faculties are readily recognised, how the problems are to be comprehended and addressed are limited (Lee, 2007). The problem identified in the literature is that organisational culture in the universities focuses on academic workload, productivity and effectiveness rather than allowing opportunity for academics to carry out research. The study of Bosch & Taylor (2011) has provided an important review to address this problem. Based on their explanation, academics at their universities view themselves as teachers. The establishment of research as a core task of an academician's job is perceived as a threat. In their interview findings, the importance on 'publish and perish' is clearly underlined. Therefore, it can be summarised that the culture of teaching and academic research should be observed as interdependent. This is because research culture could improve knowledge which could be used in teaching. This problem will be addressed adequately and this study will also provide evidence in proving how research culture as a tool can be used to improve the performance of academics in an online and distance learning environment.

### **Significance of the Study**

By providing a comprehensive discussion to address the problem statement, this study could grant significant contributions to the cultural development in the academia. Ultimately, this will lead to motivating more academics to perform institutional research with the vision of promoting knowledge. Three major contributions to the area of interest will be granted. The study will 1) narrow the literature gap of Bosch & Taylor (2011), Kondra & Hurst (2008), Leimer (2009) and Plymouth (2003) by providing evidence from the case study methodology perspective 2) present a comprehensive discussion on how to develop an institutional research culture in a university and 3) provide recommendations to future researchers on how to further enrich the literature.

### **Research Objectives**

The research aims to present the case study of OUM Business School which represents an actual live scenario where a single faculty systematically works at fostering its

research culture as a means to increase institutional capability. The research traces the steps that have been taken by the leaders and team members of OUM Business School to foster research and measures the outcome of the effort.

## **Literature Review**

According to Vetrivel (2010) leaders are the power behind an organisation. Leaders create and manage an organisation's culture (Schein, 1985) and influence the behaviour of employees (Kennedy, Goolsby and Arnould, 2003). They are the catalysts for the success of their subordinates, customers and organizational stakeholders (Ehrhart, 2004). Leaders are important as, if they treat their employees well, the employees will then reciprocate by treating customers well (Chebat and Kollias (2000). In fact employees' extra-role behaviour increases when they perceive that their supervisors or leaders are supportive (Shanock and Eisenberger, 2006; Aselage and Eisenberger, 2003).

Leaders play a critical role in ensuring that any required changes are effectively and sustainably put into practice, especially in the current turbulent education environment (Scott *et. al.*, 2010). Leaders have to build their employees' talent as this will advance a university's strategic direction and increase its competitive position (Martens and Salewski, 2009). Followers can measure how serious their leaders are about key values by observing how much time is spent on them (Kouzes and Posner, 2003) and whether the leader addresses the questions of what needs to be done and what is right for the organisation (Drucker, 2004). Effective leaders get things done and create a positive environment in which people are happy, motivated, committed and have confidence in their capabilities (Jaramillo *et. al.*, 2009). Effective leaders listen, link and lead – and actively teach their staff how to make the desired changes work (Fullan and Scott, 2009). Academic leaders in particular have responsibility for mission, direction, inspiration, building teamwork and setting an example (Law and Glover, 2000). They encounter significant external and internal challenges which have an impact on their time, expertise, energies and emotional wellbeing (Vetrivel, 2010).

Holligan, Wilson and Humes (2011) studied the different research cultures in several university education departments. They basically found that there were two different scenarios where research intensification are concerned – one where the intensification revolved more around lack expertise and divergence of opinion about the purposes of research while the other involved demands for research paper outputs, winning grants and finding time.

Morest (2009) found that in higher education, the rigorous research – including comparison group, longitudinal study, triangulation, and the clear acknowledgement of a study's limitations are important in order to gain the trust and respect of other academics. This will in turn lead to cultural change. According to him, institutional research leaders need to recognise the important role that they can play in generating interest in research and assessment.

Deans in particular, play an important role in fostering an institutional research culture. Bray (2008) iterated that deans need to be aware of how different parties in their campus view their behaviour and that it would be difficult if the dean is unable to establish an effective way to work across the boundaries that surround her or his post.

Deans have to ensure that is a balance between the sharing of information and the making of timely decisions (*ibid.*).

Museus (2007) cautioned that the more structurally diverse a higher education institution becomes, the more complex are their institutional cultures. This is partly due to the fact that institutional subcultures are consistently emerging in collective response to old and new challenges that different institutional subpopulation face. However, a broad organizational view, horizontal connections and interactions between people and departments, and organizational learning are components of a collaborative culture that are natural to institutional research. At colleges and universities where collaborative-based systems and organizational learning are viewed as the path to the future, using these institutional research qualities can help this transformation emerge (Karen, 2011).

### **Research Methodology**

According to Gillham (2010, pp 11), qualitative research in nature tends to be descriptive and is very helpful in exploring complexities in the scope of study. Another benefit according to Schostak (2005, pp 146) is that qualitative methods can assist researchers to achieve validity of findings through interview and case study techniques. In light of the above elaboration, qualitative studies do provide benefits because it describes reality experienced by individuals. The qualitative approach has been clearly related to the social constructivist approach by Maroun (2012). Being in the social constructivist paradigm, sometimes subjective patterns constructed by individuals may be difficult to understand. Based on the review provided by previous methodologist, it is found that case study could offer two major benefits. Grix (2010, pp 33) views the advantages of qualitative research as collection of amass information through in-depth investigations to assist in developing grounded theories. The qualitative case study methodology will be adopted in this study because of the strengths in can provide in resolving the research problem. Case study allows much detail to be collected that would not be normally obtained by other form of research design.

### **Findings and Discussion**

OUM Business School (OUMBS or formally known as the Faculty of Business and Management) initiated its work teams on the 1<sup>st</sup> of May, 2013 with the change in its leadership. The teams were set up to achieve the following objectives:

- (a) To foster leadership skills amongst academicians by allowing them to lead teams.
- (b) To build institutional capability by focusing on the main strengths that an academic should have.
- (c) To foster teamwork and strengthen relationship between academics and support staff.

This paper focuses on the Research and Publication team which was set up with the goal of promoting OUMBS research and publications. It was mandated by the Dean that the team:

- Organise 30 minute knowledge sharing sessions e.g. presentation of proposals / seminar/conference papers / research workshop
- Search for workshops/seminars/conferences for academicians to attend
- Conduct research and publication workshops for academicians and postgraduate students

The leader chosen to lead the team was an experienced academician and researcher whose track record was exemplary. Team members chosen were also those who liked research and publication. This was done to ensure that the team members were passionate about the team goals and objectives.

The first project was initiated by the Dean herself who conducted a workshop on how to write literature reviews. The one day workshop was designed to train the junior or young academicians on what constitutes a critical literature review and the steps to writing a good literature review. The session included hands-on writing and the trainees were given the task of writing their PhD proposals or a conference paper. This was important as the academicians understood that research was an important objective of OUMBS and lent support to this. This effort also supported Kouzes and Posner's (2003) view that followers can measure how serious their leaders are about key values by observing how much time is spent on the and whether the leader addresses the questions of what needs to be done and what is right for the organisation (Drucker, 2004).

This was followed by several knowledge sharing or "knowledge spas" organised by the research and publications team. Prior to this, anyone who attended a seminar or conference did not have to share anything with their team members. Under the new leadership, all academicians and support staff who attended conferences or seminars had to come back and share their experience or present something on a paper that they particularly found interesting or useful. Academicians who presented in conferences were also required to share their papers with OUMBS members.

Apart from this, the Dean and the research and publications team leader initiated and headed several research groups to spear head the research and publication process in OUMBS. Other senior academicians especially professors and doctorates were also encouraged to form groups in their specialised fields and to come up with research papers – either conferences or publications. This is in line with Morest's (2009) observation that institutional research leaders need to recognise the important role that they can play in generating interest in research and assessment. Bearing the time and fund limitations in OUMBS, any type of research was encouraged. Here, research is deemed a subset of innovation where "learning and teaching innovations come in all colours, shapes and sizes" (Smith, 2011).

The Dean in OUM Business School thus pushes for proactive behaviour by empowering the team members with specific tasks. The school in itself is rather unique in that it still has the guidance and leadership of its ex-Deans who are still attached to the school. They are what is described by Hill (2008) as leading from behind or akin to a shepherd. They stay behind the flock whereupon people follow without realising that they are being directed from behind. According to Hill, leading from behind requires crucial responsibilities and judgment calls – deciding who is in or out, articulating values for the group, developing talents of team members so that they can flourish in their roles,



setting boundaries and managing the tensions in the group. The ex-Deans play a crucial role in ensuring that the initiatives started by the Dean are supported and carried out effectively.

In OUMBS, the leader develops competence and confidence, and foster accountability in the work that is done, supporting Kouzes and Posner’s (2002) claim that these are essential factors for strengthening others to act. According to them, workers who feel a sense of empowerment, ownership responsibility and involvement are more satisfied and productive, leading to positive business outcomes (*ibid.*). This is certainly true for OUM Business School as faculty members are very happy and feel a high sense of belongingness to the teams.

The research and publication team in particular has shown remarkable success. Where prior to this, there is only a minimal amount of conferences attended and research done, the past year has generated an increased amount of output as tabled below:

**Table 1.0: Conferences, seminars, trainings, workshops and publications attended and published by the OUM Business School academicians.**

YEAR	NUMBER OF ATTENDED SEMINAR / CONFERENCE/WORKSHOP/D ISCUSSIONS
2014	17
2013	20

YEAR	NUMBER OF PUBLISHED PAPERS
2014	11
2013	4
	<b>*FUTURE PAPERS TO BE PUBLISHED BY YEAR END 2014</b>
2014	10

The remarkable increase in research and publication since the team was set up supports the fact that employees' extra-role behaviour increases when they perceive that their supervisors or leaders are supportive (Shanock and Eisenberger, 2006; Aselage and Eisenberger, 2003). Many staff, both academic and non-academic, have expressed satisfaction over their success, especially those who have not been involved in any sort of research before. Some remarked that seeing their name in print for the first time boosted their morale and gave them impetus to further engage in research and publication.

The direct involvement of the leaders in OUMBS in fostering a research culture through its research and publication team has indeed resulted in success as shown above. As explained earlier in this paper, the Business School is in the verge of promoting publication culture among the academics. As depicted in Table 1.0, the numbers of publications are expected to grow from 11 to 21 by the end of 2014. The growth initiative in publication will be done in conjunction with the World Conference on Economics and Business Management which will be hosted by Open University Malaysia later in this year.

This further supports Jaramillo *et al.*'s (2009) findings that effective leaders get things done and create a positive environment in which people are happy, motivated, committed and have confidence in their capabilities (Jaramillo *et al.*, 2009). The OUMBS effort also supports the view that effective leaders who actively teach their staff how to make the desired changes work will achieve success (Fullan and Scott, 2009). Nonetheless, notably changing an image is not easy. It requires sustained attention and action across years (Leimer, 2009 p91).

## **Conclusion**

This case study has shown that the success of an academic faculty lies in the teamwork amongst its academicians and support staff, lead by effective leaders.

As Yelder and Codling (2004) succinctly put it:

*It is essential to acknowledge the inspirational, galvanizing effect that a leader should have. As much as anything, leadership is about creating a vision of what might be, and fostering a culture that supports and can achieve that vision. A leader doesn't have to do it all, but must articulate an inspiring vision that compels others to "buy in".*

The experience of OUM Business School has shown that effective academic leadership and the use of a structured work team can indeed be practiced in an academic faculty to build institutional capability and ensure continuous improvement. Here, the use of a structured team has fostered a research culture in the business school and serves as a step to achieve a higher level of teaching and learning in the future.

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## APPENDIXES

NO	NAME	DESIGNATION	SEMINAR/ CONFERENCE/ WORKSHOP/ DISCUSSIONS	PROVIDER	LOCATION
<b>2013</b>					
1.	Zorah Binti Abu Kassim	Senior Lecturer	Conference	2nd Applied International Business Conference 2013	Universiti Malaysia Sabah
2.	Wardah Mohamad	Dean/ Director	Roundtable discussions	Perdana Leadership Foundation Ceo Forum 2013: Better Times Ahead For Malaysia? Predictions, Trends And Outlook For 2013-2020 Perdana Leadership Foundation , Putrajaya	Berjaya Times Square & Convention Centre Kuala Lumpur
3.	Mohd Rizan Bin Ruslan	Assistant Manager	Conference	57th World Assembly Of The International Council On Education For Teaching	Sukhothai Thammathirat Open University Nonthaburi Thailand
4.	Wardah Mohamad	Dean/ Director	Roundtable discussions	Potential Plus Consultancy Sdn Bhd	Bilik Persidangan, Aras 2 Oum
5.	Wardah Binti Mohamad	Dean/Director	Conference	International Conference On Tourism Development 2013-Sustainable Tourism	Hotel G, Pulau Pinang
6.	Tuan Fatma Binti Tuan Sulaiman	Deputy Dean, Assessment	Conference	International Academic Conference 2013	UiTM Terengganu
7.	Wardah Mohamad	Dean/ Director	Workshop	Question Bank Workshop Ifta Oum	Pullman Hotel Putrajaya
8.	Ariff Syah Bin Juhari	Senior Lecturer	Conference	Gaining From University-Understanding Malaysian Diversity & Sensitivity To Upgrade Your Visibility & Productivity	Royale Chulan Kuala Lumpur
9.	Wardah Mohamad	Dean/ Director	Workshop	Peak Performing Leadership Development Programme Module 4 Getting Excellence Performance In The Organisation Potential Plus Consultancy Sdn Bhd	Le Meridien Hotel,Kl
10.	Chiam Chooi Chea	Lecturer	Conference	International Conference On Assessment For Higher Education Across Domains And Skills 2013	Hotel Grand Season,Kl
11.	Loo Sze Wei	Senior Lecturer	Conference	International Conference On Assessment For Higher Education Across Domains And Skills 2013	Hotel Grand Season,Kl
12.	Nur Azlin Binti Omar	Assistant Manager	Conference	Tarc International Conference 2013	Tunku Abdul Rahman College (Tarc), Kuala Lumpur
13.	Raemah Binti Abdullah Hashim	Senior Lecturer	Conference	Global Conference For Academic Research On Economics, Accounting And Business Management	Royale Bintang Hotel Kuala Lumpur

14.	Chiam Chooi Chea	Lecturer	Conference	The Asian Conference On Arts And Cultures	Srinakharinwirot University Bangkok Thailand
15.	Zulaika Binti Zakariah	Lecturer	Conference	2nd Mara-Oisca International Business Forum 2013	Kuala Lumpur
16.	Ratna Khuzaimah Binti Mohamad	Lecturer	Conference	Pde 2014 - International Conference On Professional Development In Education	Park Hotel Bandung Indonesia
17.	Raemah Binti Abdullah Hashim	Senior Lecturer	Conference	Pde 2014 - International Conference On Professional Development In Education	Park Hotel Bandung Indonesia
18.	Chiam Chooi Chea	Lecturer	Conference	International Seminar On Quality Assurance & Sustainability Of Higher Education Institutions	Bali Indonesia
19.	Zulaika Binti Zakariah	Lecturer	Conference	World Tourism Conferecne 2013 - Global Tourism:Games Chargers And Pace Setters	Melaka
20.	Mohd Ghazali Mohayuddin	Professor	Conference	Conference In International Higher Education (Cihe 2013)	International University Of Malaya-Wales, Kuala Lumpur
<b>2014</b>					
1.	Liana Mohamad	Lecturer	Seminar	Isis national forum malaysia's goods and services tax(gst)	Sheraton imperial Kuala Lumpur
2	Ratna Khuzaimah	Lecturer	Seminar	Isis national forum malaysia's goods and services tax(gst)	Sheraton imperial Kuala Lumpur
3.	Liana Mohamad	Lecturer	Workshop	How to tech and engage accounting students in creative and exciting ways	Concorde Hotel, Kuala Lumpur
4.	Ratna Khuzaimah	Lecturer	Workshop	How to tech and engage accounting students in creative and exciting ways	Concord hotel, Kuala Lumpur
5.	Chiam Chooi Chea	Lecturer	Seminar	Participant	Philippines
6.	Dr Zorah Abu Kassim	Senior Lecturer	Seminar	Case method teaching seminar part 1	Singapore management university
7.	Chiam Chooi Chea	Lecturer	Presenter	International conference on business, science and technology 2014	Hatyai, Thailand
8.	Zulhairi Zakariah	Lecturer	Seminar	Public lecture: brand islam is the new black in marketing	INCEIF, Kuala Lumpur
9.	Afzhan Khan	Lecturer	Seminar	2014 corporate fraud conference,	libm, maluri
10.	Ap Dr Wardah	Dean/ Director	Training	Course on education business in diversified culture : a lean startup approach"	Niew

11.	All OUMBS Academicians		Workshop	Workshop 'train the trainers'	OUMBS
12.	Baldev Singh	Senior Lecturer	Seminar	National accounting educators symposium	MIA
13.	Dr Raemah	Senior Lecturer	Seminar	NVIVO, UM	University Malaya
14.	Dr Zorah	Senior Lecturer	Seminar	Workshop on spss for research	University Malaya
15.	Ratna Khuzaimah Binti Mohamad	Lecturer	Conference/Presenter	Pde 2014 - International Conference On Professional Development In Education	Bandung, Indonesia
16.	Raemah Binti Abdullah Hashim	Senior Lecturer Senior Lecturer	Conference/Presenter	Pde 2014 - International Conference On Professional Development In Education	Bandung, Indonesia
17.	Afzhan Khan	Lecturer	Presenter	12th international conference on management and behaviour services	India
<b>PUBLISHED PAPERS IN 2014</b>					
1.	Wardah Mohamad & Zorah Abu Kassim, Chapter 7: Potential Economic Impact of rare earths industries sector by Akademi Sains Malaysia: Blueprint on rare earth industries in Malaysia (2014)				
2.	Wardah Mohamad, Zulaika Zakariah, Ratna Khuzaimah, Liana Mohamad (2014) Challenges and Strategies in Engaging Adult Learners in the Classroom – A Case Study of OUM Business School, proceedings in PDE2014, Bandung, Indonesia.				
3.	Zulhairi Zakariah, Ratna Khuzaimah, Liana Mohamad, Wardah Mohamad (2014) The Flipped Classroom – A Case in OUM Business School, proceedings in PDE2014, Bandung, Indonesia.				
4.	Raemah Abdullah, Abdul Razak Habib, Zulaika Zakariah, Wardah Mohamad (2014) Study on postgraduate student preferred / dislike teaching/learning techniques: a case study of a private university in Malaysia, proceedings in PDE2014, Bandung, Indonesia.				
5.	Dr.Raemah : Management Journal Online				
6.	Dr.Zorah :Open University UK Students Magazine				
7.	AP.Dr.Wardah: Management Journal Online				
8.	Prof.Ghazali: Journal of International Food& Agribusiness Marketing				
9.	Dr.Jeannot :International Journal of Business and Society				
10.	Shishi Kumar :Asian Social Science & European Journal of Training and Development				
11.	Chiam Chooi Chea: Terengganu International Management & Business Journal				
<b>PUBLISHED PAPERS IN 2013</b>					
1.	Raemah Abdullah Hashim, Zulaika Zakariah, Wardah Mohamad and Sidi Merican (2013), Exploring Visitors' Attitude towards Green Practices and Revisit Intentions of a Tourist Destination, 6th Global Conference for Academic Research on Economics, Accounting, and Business Management, 14-15 December 2013 at Kuala Lumpur.				

2.	Wardah Mohamad, and Mansor Fadzil, and Mohd Rizan Ruslan, (2013) “Utilising ODL Technology in Case Based Teaching and Learning – Empowering Learners in OUM’s BBPS 4103”_ In: Seventh Pan-Commonwealth Forum on Open Learning (PCF7) , Dec 2013, Abuja, Nigeria.
3.	Wardah Mohamad, (2013) Building Core Competencies for Sustainability through Leadership & Teamwork : the FBM experience. In: OUM <u>Seminar Series</u> 3/2013, 28 March 2013, Theatre, Open University Malaysia.
4.	Norfardilawati Musa , and Shuhaida Md Noor , and Wardah Mohamad, (2013) _Developing Destination Brand Identity : Towards Sustainability of Tourism Destination from the Perspective of Stakeholders and Theory of Social Identity, Conference Proceedings, <u>International Conference</u> On Tourism Development 2013-Sustainable Tourism, 03-06 Feb 2013, Pulau Pinang.